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Cover Story: More '61 Cars! 70
Do-It-Yourself Assassins 82
Let's Mine The World's Underwater Wealth! 96

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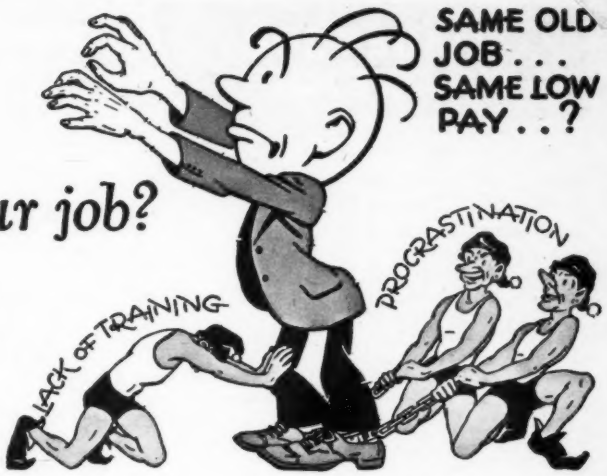

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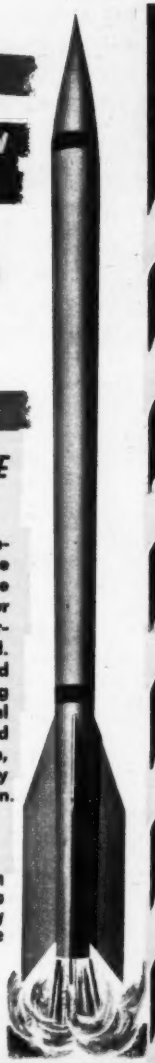

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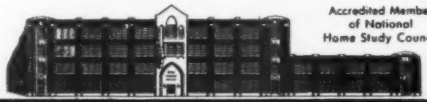

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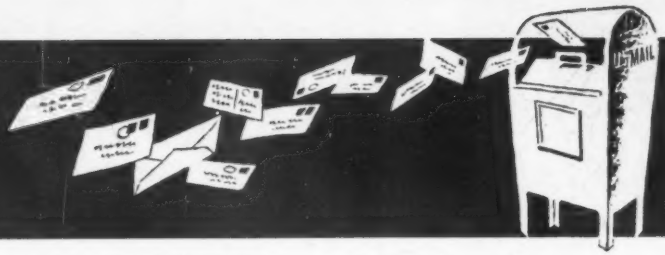
Dear Editor



Address mail to: Letters Editor, MECHANIX ILLUSTRATED, 67 West 44th Street, New York 36, N. Y.

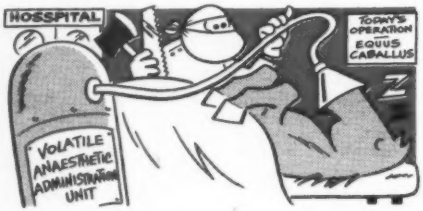
● *Mouthful*

Something gets into our house at night, eating up food and gnawing woodwork. What can I do? I don't want traps or poisons around the place.

G. S. Goetz
Ithaca, N. Y.

Jack Keil of Grand View, N. Y., had a nightly visitor that gnawed the corner off a door. Jack repaired the corner with Silly Putty. The next day the corner was gnawed away again, Silly Putty had been spat out all over the room, as though in desperate distaste, and the animal, whatever it was, has not returned.

● *Sensitive Hoss Croaker*



In your July issue you showed a picture of Dr. E. Wynn Jones' volatile anesthetic administration unit. I don't feel that the terms "gas machine" and "nag" are used in proper respect for the effort and ingenuity that have gone into the development of this apparatus.

Garland M. Lasater
Oklahoma State University

Garland, suppose you try putting "volatile anaesthetic administration unit" into a three-line caption.

● *Patent Sock*

In the August Patents Granted it was noted that a San Bernardino man, Mr. Deward L. Corbin, won a patent on socks with a division between the big toe and the rest of the toes, for sandal-wearers. Haven't the Japanese had these for a long time?

Bill Shea
Boston, Mass.

The Japanese use the tabi, a sort of non-stretch cloth undershoe with a fastening.

● *Cure-All*

What do you do for squeaky bedsprings, besides throwing them out?

Name withheld

Oil cures all squeaks. Even those of mice, if used right. Put a drop at each point where metal rubs metal. That should keep you busy and out of trouble one whole evening.

● *Ask Us Anything*

When does Indian summer come—August or September?

Ray Goodwin
St. Paul, Minn.

November, usually. Indian Summer is a warm spell in late fall or early winter.

[Continued on page 20]

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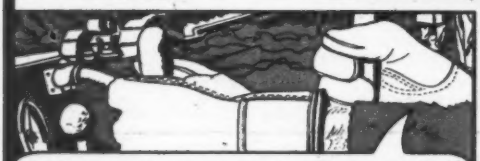

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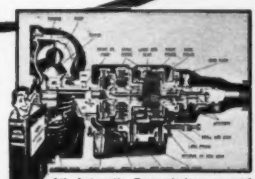

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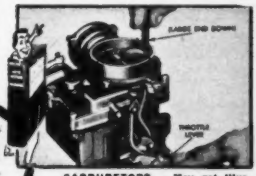

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PATENTS GRANTED

ARM fins which fit on a skin diver's elbows won patent 2,947,010 for Charles Rabin of Metaire, La. The flexible fins allow the swimmer to propel himself by moving his elbows in and out, close to his sides.

A simple do-it-yourself muffler kit got patent 2,946,395 for Bernard O. Overland of Billings, Mont. The kit consists of a rectangular sheet of flexible metal lined with asbestos. It is wrapped around the defective muffler and held in place by bolts.

Gildo Prosen of Chicago, Ill., was given patent 2,931,404 for an electric potato peeling machine which skins up to four pounds of

spuds in 60 seconds via a concave disk at the bottom of the bowl. It will also peel other soft-skin foods. The peeler is shown in the photo above as an attachment for a mixer, left, and as self-powered unit, right.

An automatic fountain toothbrush which can also be used as a mascara or cosmetic dispenser took patent 2,908,925 for Jack Reitknecht of New York City. The toothpaste is stored in the handle, providing a completely personal and sanitary toothbrush.

A modified method for making vodka—the process uses partially activated hardwood charcoal to modify the "congenerics," or impurity particles, from the alcoholic spirits—devised by Frederick L. Jacobs of Wethersfield, Conn., was granted patent 2,946,687.

Inventor Vilas L. Snyder of Wichita, Kan., got patent 2,944,852 for his vertically collapsible trailer that is towed by car. The trailer expands for sleeping or cooking, etc., and contracts for travel. It is made in three vertically telescoping sections which are raised or lowered by a cable and pulley system. •

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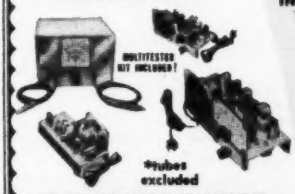

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Plastic Greenhouse

Samuel L. Lovell of North Baltimore, Ohio, proposes a plastic greenhouse for crops. What are its possibilities?

You will have to determine that. Your greenhouse will introduce new costs and require new storage space which must be justified by results. I suggest that you make comparisons over several seasons, then expand your ideas to include other advantages. A simple change might permit watering, introducing insecticides, etc.

Mower Height Control

William C. Munger of Highland, Mich., has developed a lawn mower attachment to control the height of the cut. He has used it for some time. Should he try for a patent?

If the height of the cut is dependent strictly on the position of the handle, any normal variation of the handle should produce a wavy lawn. On the other hand, if you have a lockable control which is easily variable and may be fitted readily to most mowers now on the market, and if your device is more than just another wheel that raises the rear of the mower, you should investigate the possibilities of protection and marketing.

INVENTOR'S TIP OF THE MONTH

A modern method of reforestation consists of raising seedlings in fertile cartridges, then shooting the cartridges into the ground with a spring-fired gun. Someone should develop and market a similar scheme for refurbishing worn grass plots, setting out plants, planting bulbs, or shooting fertilizer or weed-killer cartridges into the ground.

Marketing Technique

Lawrence M. Sanders of Bellflower, Calif., has a pending patent that he feels will startle the people in the brake business. He intends to offer non-exclusive manufacturing rights to many companies, thus assuring competition, and to require a small percentage down payment plus a heavy penalty if the companies do not live up to an estimated production. What do I think of this plan?

The rewards of this plan, should it work, would be no more than those of the conventional royalty procedure. Royalties are based on sales, as your percentage would be. You attain the ultimate goal when the market is saturated—whether it is saturated by one company or many. You are assuming that your invention is so good that manufacturers will accept your demands. Don't be surprised if none does so. You need to develop a more realistic, workable plan—maybe territorial franchises. Don't worry about infringement by a big company. The big company is vulnerable. The small, fly-by-night outfit, which could go out of business in a hurry, then set up in a new location, is likely to be more troublesome. You cannot collect damages from a wildcat firm because it has few assets.

Clothes Line Cleaner

William Armstrong of Montreal sends five pages of drawings and descriptions for a device to clean clothes lines. He has sent a copy to the Patents and Copyrights Department of

[*Continued on page* 23]

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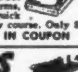

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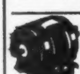

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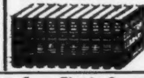

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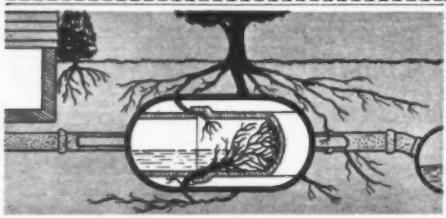

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Dear Editor

[*Continued from page* 10]

• *Wrong Knight*

Re your story on Florida's Museum of Speed at Daytona Beach, Sir William Campbell, if any, was not the Sir who owned and drove the 330-mph Bluebird automobile. It was Sir Malcolm Campbell—a name so famous I'm sure you all know it and that your calling him William was merely an editorial blunder—not ignorance.

Ed Tenbrook
Albany, N. Y.

Thank you for being so understanding.

• *Trigger Lock*

On page 60 of the August MI a Mr. T. Jones, Chula Vista, Calif., says that he would like to see a gun with a trigger lock. There is such a gun. It is .22 revolver called the Ultra Side-kick. The key turns a screw up against the back of the hammer so that it may not be cocked. It is manufactured by the Harrington and Richardson Gun Company, Inc., Worcester, Mass.

Charles Payne
Columbus, Ind.

• *Buck On A Bumper?*

Someone has told me that it's wrong to carry a deer back from the hunt on the bumper of your car because the heat spoils the meat. As the weather is cold and the heat through the fender isn't much anyway, this doesn't make much sense to me but it could be. What do you say about it?

Don't print my name as I don't want anyone to know I've fallen for a cock-and-bull story.

Montpelier, Vt.

George and Jacques Herter, in their Professional Guide's Manual, say that motor heat will spoil meat in warm weather, which you do sometimes get in deer season, and in cold weather it will damage the taste of the meat by driving the strong odor of the hide into it. The Herters recommend carrying the deer in the trunk if at all possible, otherwise on the roof. Try to keep it out of the sun.

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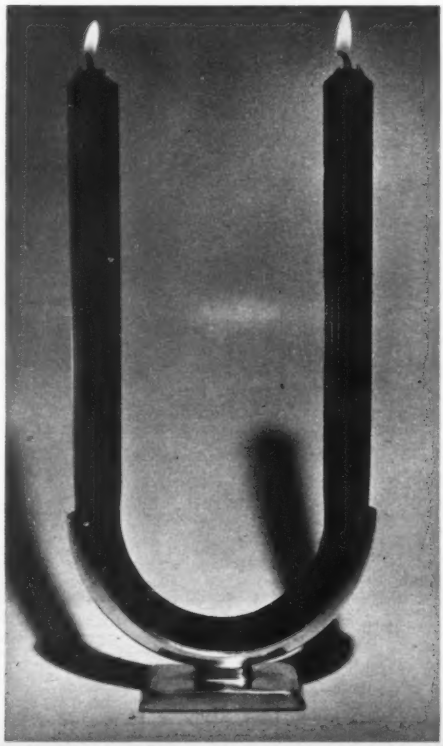

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Invention Clinic

[*Continued from page* 18]

his government, has not received a reply after two weeks. What should be his next step?

If you were to patent your device—and your papers are not properly prepared to comply with the regulations of the U. S. Patent Office—you would be protecting your design only. In ten minutes flat one could sketch ten different ways to do the same job, none of which would conflict with your patent. Neither your construction nor any of the others would outperform a piece of cloth held in the hand. Furthermore, I doubt your claim of 100 per cent effectiveness.

Jet-Driven Boat

Joel L. Briggs of San Diego, Calif., was developing an idea for a water-jet driven boat when an article, describing a similar vessel, in MI caused him considerable consternation. What chance does he have to protect an idea which also would control direction by a similar jet method? Does his letter to us serve as a technical disclosure to establish conception?

The idea of using a jet of water to drive a boat is very old. Nature beat man to this form of propulsion in the squid and other marine animals. Many systems also have been contrived for using such a jet to steer or reverse the craft. You may have contrived something better than has been done before, and a patent search might reveal this. Your letter contained no technical details and therefore cannot serve as a technical disclosure.

TV Colortone Production

Reas Sullivan, Jr., of Kokomo, Ind., has developed a plug-in adapter which gives a colortone to a black and white picture on a color TV set. A large company said it would consider the idea if it were patented. Is it worth the money he would need to invest?

A promise to consider if you patent is meaningless. If this company is really interested, it will promise in writing to purchase the invention if it works as you claim. It might even advance money toward a patent on condition that you assigned to it the rights for certain other considerations. Right now your device is a novelty with limited appeal. But your plug-in adapter idea may lend itself to a more varied use. Don't discard your plan yet. Dig into it some more and follow through with the company to see if you can develop a better deal than mere consideration.

[*Continued on next page*]

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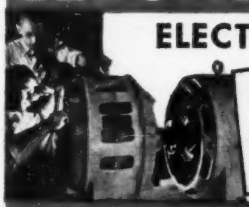

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BORDEN'S PRODUCTS FOR THE HOME HANDYMAN

Auto Jack

Richard Lufkin of Evansdale, Iowa, sends a diagram for an auto jack which he feels could be made at a lower cost than existing jacks. Will it work? How can one get a patent when he has no money?

There is one thing wrong with this right now. You need to develop some mechanism or system which will bring together the leaves of the jack. When you do this you will have something like the popular scissors jack but without its advantages of height and solidity.

Cherry Harvest

James E. Fyffe of Allegan, Mich., sends diagrams of a cherry harvesting machine. He says he is a professional machine designer but the patenting procedure business is new to him. Is this design worthy of protection?

To determine that, you should hire a patent attorney—first for a search, then, if his report seems favorable, to file for a patent. Although a scale model is not required for a patent we strongly recommend that you build a reasonably satisfactory working model before applying. I know of no machine as versatile as you claim yours to be. If it works it ought to be worthy of protection.

Foolproof Auto Safety Belts

Raymond E. Deiter of Dayton, Ohio, suggests electrical circuit controlled safety belts for use in autos. An unbuckled belt would shut off the ignition. What is my opinion?

I don't think that you can get to first base with this idea. There are many times when a rider in a car may find it necessary to remove the belt and the driver certainly wouldn't want the car to stall automatically as a result. This would add to potential accidents.

Filter Spoon

Barrett E. Caulk of Tampa, Fla., sends a design for a spoon intended to drain liquids from the more solid food. What is our opinion of this design?

Perforated spoons for this purpose are available on the market. You seem to have made two changes—size, which is not a patentable detail, and the manner in which you have arranged the perforations. The latter may have value. We suggest a search but would not recommend any procedure beyond this until you are sure of a sale.

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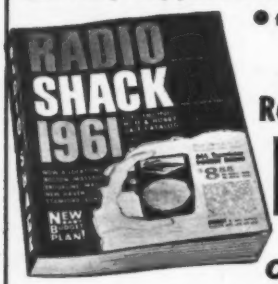

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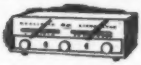

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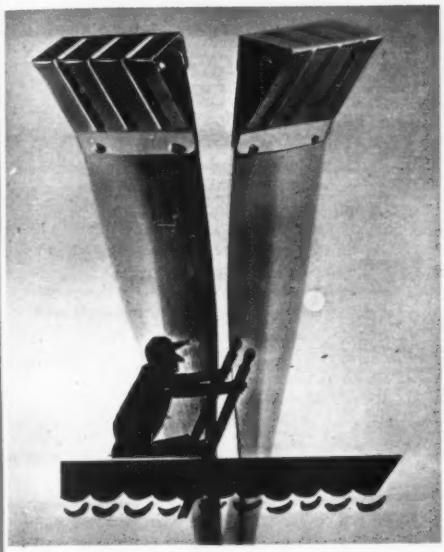

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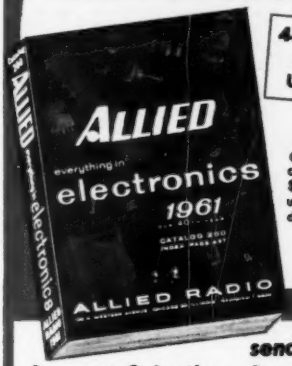

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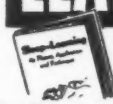

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Keely put on many demonstrations in his laboratory in a house on North 20th Street in Philadelphia for newspaper reporters, scientists, physicists, and potential investors—and all came away starry-eyed from what they had seen: tremendous and almost limitless energy extracted from water.

Before the entranced eyes of his invited guests, Keely poured a glass of water into his mystery machine and produced a pressure of 50,000 pounds per square inch, tore apart thick cables, twisted metal bars into pretzel knots, propelled bullets through foot-thick wood and snapped logs into kindling wood. Various "switch-devices," having much visual appeal, were used to set the Keely motor into action: the plucking of a violin string, the note of a zither, a blown harmonica note or the striking of a tuning fork.

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All through his life the inventor-scientist-carpenter-orchestra leader refused to reveal the secret of his "etheric force" motor and the wondrous ways in which it achieved its startling power. He shunned suggestions he obtain patents on the grounds that he dare not reveal any of the secrets of his invention before he perfected it because it was too dangerous a force to be left lying around loose. He even refused to collaborate with Thomas Edison to perfect his device.

And then John Worrell Keely passed on in 1898 to the great reward that awaits us all—inventors and dumbkopfs alike. Immediately after his death, professors from the engineering and physics departments of the University of Pennsylvania entered and tore apart the house in Philadelphia which had housed Keely's laboratory. In the cellar was found the heart of his apparatus—a giant steel globe to contain, and pipes running up through the house to conduct, the compressed air that had worked his motor and fooled the suckers for 25 years!—*James Finnegan*

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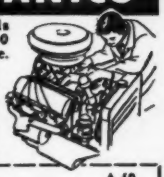

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FULL-SIZE . . . trace on wood and saw out. Clever, ORIGINAL designs, things you can make to SELL. Wall shelves, lawn signs, planters, book ends, others. $1 postpaid

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Get in on the ground floor of a booming $750 million a year industry. Fill the need in your area for safe, effective "on location" cleaning of carpets and upholstery. Every home houses a customer! We'll train and establish you in YOUR OWN lifetime business! Start part-time if employed. You'll be trained by a nearby dealer and at 50-hr. school to get you quickly established. You provide 6 services to multiply profits. No shop needed. Just 2 jobs a day nets $8,750.00 first year. We back you with 27 services: counseling, mat'l advg. . . McCalls, Parents, etc., conventions, advg. kits, others. Booklets explain everything—no obligation, no salesman will call. Send for *Free Booklets.*

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O-17M Duraclean Bldg., Deerfield, Ill.

YOUR POSTMASTER SUGGESTS:

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"FOR DELIVERY IN YOUR LOCAL AREA, MAIL BY DECEMBER 16, 1960

HELP yourself to better service from your postal service by including postal zone numbers on all correspondence.

Don't forget to include your own postal zone number in your own return address.

Postal zoning helps your post office give you better service.

MI Classified Ads

Your advertisement can reach this mail-buying audience of more than a million readers for only $1.10 per word . . . payable in advance (Check or M.O. please) . . . minimum 10 words. Copy to be inserted in January issue must be in the office November 3. Mail to MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Word count: Zone number free. Figure one word: Name of state (New Jersey), name of city (New York); sets of characters as in key (14-D); also abbreviations as 35MM, 8x10, D.C., A.C.

SAVE MONEY • ORDER BY MAIL

• • • ADVERTISING & BUSINESS SERVICES

ADVERTISING? YOU'LL do better with our guidance. Newspaper, magazine ratebook 25¢. Chicago Advertising Agency, 28-E Jackson, Chicago 4.

ADVERTISE: 24 WORDS, 100 Canadian Newspapers, $5.50. Lists Free. Advertising Bureau, 10511-B Springfield, Chicago 55.

• • • AGENTS WANTED

EVERY MAN A Prospect. Request refundable sales kit offer showing line of belt buckles, tie clasps, money clips, cuff links, lapels, individualized with customer's name and emblems. Cap badges for trucking, bus, taxi, police, firemen also heavy construction emblems. Choice 3000 emblems. Hook-Fast, Box 1425MI, Providence, R. I.

SELL CHAMPION, AC, Autolite spark plugs. Reconditioned, electroplated, guaranteed 10,000 miles. 100% profit. Free sample. Lee Spark Plug Co., 1608-M Roberts, Houston 3, Texas.

FREE! BEAUTIFUL Mexican curios! Rush 30¢ stamps mailing. Sylviam, Apartado 9036, Mexico City.

AUTOMATIC BED warming sheet, you sleep on, not under. Outsells electric blankets 10 ways, costs less. Generous profits. Patented Products Corp., Dept. MX1160, Danville, Ohio.

YOUR OWN business—Suits $1.50; Overcoats 65¢; Mackinaws 35¢; Shoes 12½¢; Ladies' Coats 30¢; Dresses 15¢. Enormous profits. Catalog Free. Nathan Portnoy Assoc., 2109-M Roosevelt Rd., Chicago 8, Ill.

"FOG-STOP" WINDSHIELD Cloth. Instantly removes blurry Mist, Frost, Sleet, Snow. Stops windshield fogging. Samples sent on trial. Kristee 75, Akron, Ohio.

PRINTING, ADVERTISING Salesmen—Excellent moneymaking sideline selling Decalcomania Name Plates, small quantities. Automobile initials. Sign Letters. Free Samples, "Ralco," XL, Boston 19, Mass.

MAKE $10-$100 A Day! Sell new 5-year light bulbs. Guaranteed. Send for sample. 6 Pak $1.98, sells for $4.69. Free details. Sunmaster, 366 Fifth Ave., Dept. (11MIC), New York City.

YOUR FREE copy of World's biggest sales magazine tells you how and where to make more money on your own in selling. Specialty Salesman Magazine, Desk 7B, 307 North Michigan, Chicago 1.

FACTORY PRICES! Thousands Nationally Advertised Products. Typewriters, housewares, jewelry, watches, appliances, television, cameras, etc. New factory buying plan saves up to 40% below wholesale. Details Free. Factory Supply Company, Bloomfield 10, New Jersey.

GOLD OR Silver Letters, Numbers. Windows, Doors, Trucks. 1" to 6". 500% Profit. Free Samples. Atlas, Box 543-R, Oak Lawn, Ill.

WHOLESALE MAGAZINE Subscriptions. — Highest Commissions — Bonus. Qualified Magagencies, 451SD Kingston, Brooklyn 25, N. Y.

WILL YOU test new items in your home? Surprisingly big pay. Latest conveniences for home, car. Send no money. Just your name. Kristee 77, Akron, Ohio.

MEN! WOMEN! 60% profit on cosmetics. Famous nationally advertised Hollywood cosmetics pay 60%. Make $25 day up. Hire others. For free samples, details, write Studio Girl, Glendale, California, Dept. 500IIJ.

REAL DIAMOND Rings. Nationally advertised. Sell direct. Make big middleman's profit. No investment. Experience unnecessary. Free catalog, details. Gleamlight, 111-K10 North Columbus, Mount Vernon, N. Y.

MAKE PROFITABLE Men's-Women's wear. Sample Free. Sunmade, Brockton 64, Massachusetts.

• • • SALESMEN WANTED

YOUR OWN spare time home-operated business. Take over your area as our Service Distributor keeping retail stores supplied. Nationally advertised 30-year-old line pays up to $20.00 hour. Under $100.00 for merchandise gets you started. For samples, highly successful plan, write NOVO, 3855 Lincoln, Desk Y-89, Chicago 13.

IF YOU'RE interested in making money in selling, see the hundreds of exceptional opportunities in Salesmen's Opportunity Magazine. Send name for your copy, absolutely free. Tell us what you're selling now, Opportunity, 848 N. Dearborn, Dept. 19, Chicago 10, Illinois.

MONEY-MAKING OPPORTUNITY! Take Big profit orders for world famous Patented Varieties Fruit Trees. Also Flowering Shrubs, Roses, Vines. Big Sales outfit Free. Stark Bro's, Desk 30151, Louisiana, Missouri.

SENSATIONAL NEW longer-burning Light Bulb. Amazing Free Replacement Guarantee—never again buy light bulbs. No competition. Multi-million dollar market yours alone. Make small fortune even spare time. Incredibly quick sales. Free sales kit. Merlite (Bulb Div.), 114 E. 32nd, Dept. C-74X, New York 16.

MAKE EXTRA Money—Big Cash Commissions plus premiums for you and your customers. Sell Advertising Book Matches —sensational new Tenorama, Glamour Girls, Hillbillies; dozens others. All sizes —Quick daily sales; big repeat business. Free Master Kit makes selling easy—no experience necessary. Superior Match, Dept. F1160, 7530 Greenwood, Chicago 19.

GET NEW Shirt Outfit Free! Make $90 weekly on 5 average orders a day. Famous quality made-to-measure dress and sport shirts, $3.95 up, sell fast to all men. No experience needed. Full or part time. Write: Packard Shirt Co., Dept. 218, Terre Haute, Ind.

SEEKING NEW products? Get my outfit 47 money-making specialties. Latest conveniences for home, car. Send no money. Just your name. Kristee 103, Akron, Ohio.

START MAKING money now. Every business a prospect. Solicit delinquent accounts. Instructions free. Top commissions. National Credit, 304 Pickwick Bldg., Kansas City 6, Mo.

MAKE UP to $50.00 a day soliciting delinquent accounts. Terrific commissions. Write today. General Finance, 304W Pickwick Bldg., Kansas City 6, Mo.

WILL YOU wear new suits and topcoats without one penny cost and agree to show them to friends? You can make up to $30.00 in a day even in spare time, without canvassing. W. Z. Gibson, Inc., 500 S. Throop St., Dept. N-626, Chicago 7, Ill.

$1,000.00 A MONTH for making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. New chemical used by Airforce snuffs out fires instantly. Only $4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 E. 32nd, Dept. P-66X, New York 16.

AUTOMATIC FIRE Extinguisher Salesman. Costs $3.95. Out-O-Matic, 1737-I East 31st Avenue, Denver 5, Colorado.

• • • BUSINESS OPPORTUNITIES

FREE! NAME Brands Catalog! Your own high profit business. Sell Name Brands, full or part time. No inventory—no investment. More than 2000 Name Brand items; lowest wholesale prices. Watches, jewelry, cameras, hi-fi, stereo, radiophonos., appliances, housewares, hardware, power tools, luggage, musical instruments, garden equipment, sporting goods, toys, many others. 8 Floors of Name Brands. Million dollar inventory. Orders shipped complete within 24 hours. Send for Free beautifully illustrated catalog Now! Separate wholesale price list. H. B. Davis Corp., Dept. 16, 145 West 15 St., New York 11, N. Y.

WANT TO Make Big Money At Home? $10.00 profit in an hour possible with Invisible Mending. Make tears, holes disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details Free. Fabricon, 6254 Broadway, Chicago 40, Ill.

$1.00 BRINGS YOU $18.00 Spare-Full Time Home-Business opportunity! Amazing new velvet-spray transforms old ¢¢¢¢¢ lamps, TV-radios, figurines, furniture—anything—into $$$$$ products! Free samples, 50 Business Opportunities Booklet. Send No Money. Hok-Kraft NR, Los Angeles 61.

MI Classified Advertisements

IF YOU Like Motorcycles And Money then send for Harley-Davidson Dealership Book on how to become a dealer of motorcycles and a new line of motor scooters. Here's a chance to own your own business with a very modest investment. The youth market is beginning to explode and the next few years promise a chance to cash in on it. Write for free illustrated Dealership Book today. Harley-Davidson Motor Company, Dept. MI, Milwaukee 1, Wisconsin.

$70 WEEKLY—HOME, spare time. Simplified mail bookkeeping. Immediate income—easy! Auditax, 34757E, Los Angeles 34.

EXCEPTIONALLY PROFITABLE opportunity in Tape Recording! Free information. Baron's, Lynden, Washington.

BUY DIRECT from factories. Appliances, cameras, watches! Free details! Cam Co., 6810MI-20th Ave., Brooklyn 4, N. Y.

DRAFTING PAYS Big Money . . . leads to top positions in automotive, aeronautical, construction, mechanical fields. Learn at home in spare time. All equipment supplied. Pay Later Plan. Free Book. Christy Trades School, A-9206, 3214 Lawrence, Chicago 25.

YOUR ENVELOPES addressed accurately, reasonably. Fast service. We have capable addressers in your city. Glenway System, Box 6568, Cleveland 1, Ohio.

BRONZE BABY Shoes: Instructions, Equipment and Mountings for genuine Electroplating Process. Largest Supplier of all Plating Equipment, Supplies. Free Catalog. Hollywood Bronze Supply, Dept. B-5, 1624 East First, Los Angeles 33, Calif.

NEW HOME-IMPORT Mail Order Profitunity! Your mailbox stuffed with money! No selling. No experience. No investment. We supply everything. Free Details. Mail Order Distributors (Import Division) Dept. 83BC, 15201 South Broadway, Los Angeles, Calif.

IMPORT-EXPORT OPPORTUNITY, profitable, world-wide mail-order business from home without capital; or travel abroad. Established world trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger, Dept. C75B, Los Angeles 24, Calif.

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 2, 715 Ensor St., Baltimore 2, Md.

11,000 NEW PROSPECTS Daily. Baby record books, shoes, albums. Sell mail-order. Use our literature. Write: No-Co-Ro, Capitola 16, Calif.

$3.00 HOUR—HOME, sparetime, assembling pump lamps. Easy. Free Details. Ougor, Caldwell, Arkansas.

GROW ORCHIDS at home. Profitable, fascinating. Successful home grower explains special light, temperature and humidity conditions orchids need. Free—full details. Orchids, 100 S. Vermont, Los Angeles 4.

FREE PICTURE Folder, "How to Make $3,000 Yearly, Sparetime, Backyard, Raising Earthworms!" Oakhaven-45, Cedar Hill, Texas.

$250.00 WEEK SPARE time profit possible. Earn at home with new fascinating Printing method. $5 starts you—send no money now. Free Confidential Facts and Valuable sample. Screen-Print, NR, Los Angeles 61.

WANTED: HOME producers, to be subcontractors. Cast plastic products for manufacturers in our Clearing House Service. Thousands of easily-made items required. Cash in at home, without previous experience. Plastic Service Associates, Dept. 11-MI, East Boston 28, Mass.

INCREDIBLE NEW "Table-Top" Machine manufactures over 15,000 saleable products. Also laminates, encases, moulds and plates in bronze, chrome, or copper. 20¢ materials produce $10.00 products. Free Confidential Details and Home-Business Plan Plasti-Form, Dept. MI-11, Gardena, Calif.

190 FRANCHISE OPPORTUNITIES in new franchise directory. $2.00 postpaid. Pilot Pub, Dept. M, 46 West 33, New York 1.

LEARN SEWING Machine repairing. To $125 weekly. Sparetime. Supplies. Add to present business. Write today! Taylor Service, Box 2126, San Bernardino, Calif.

PLATE BABY shoes, jewelry, gifts, bronze and colored pearl. We finance. Free booklet. Thomas, 11029 South Vermont, Los Angeles 44.

BECOME TAX Consultant. Graduates earn $1,000-$3,000 every tax season preparing returns evenings. State approved. Union Institute, Lakewood (55), N. J.

COLLECT NAMES for us, $1.00 each. Instructions 25¢. Wilson's Specialties, Box 61-J, Mt. Pleasant, Michigan.

FRANCHISES MAKE profits! Have your own prosperous franchise business. Opportunities nationwide for distributors, dealers, agency operators. Write today. National Franchise Reports, MI-528, 333 North Michigan, Chicago 1.

INVISIBLE REWEAVING: $5-$10 per job possible reweaving burns, tears, moth-holes. Spare-full time. Free details. Skil-Weave, Dept. RC-3611, 335 W. Madison, Chicago 6, Illinois.

OPERATE RESTAURANT Or Diner. Free Booklet reveals plan. Write School of Restaurant Business, Dept. KC-729, 335 W. Madison, Chicago 6, Illinois.

OPPORTUNITY TO earn $15,000-$30,000 annually. Franchise protected. Granted on $12,500 basis. Live at home. No merchandise to buy. Selfemployed. One of most exclusive and noncompetitive Businesses in United States and Canada. Send for free explanatory booklet. Harrell & Company, Box 8-F, Louisville, Ill.

"STRIKE IT Rich" With home repairs at set prices! My $160,000 yearly business makes fantastic profits. Free Details. House Clinic National, Dept. M-11, P. O. Box 4804, Dallas 6, Texas.

RE-CAST JUNK batteries into new. Latest achievements. Battery Laboratories, Bayou LaBatre, Alabama.

LIQUID MOLDING Rubber, Free Sample Shellcraft Supplies, Chaney, 1907-B East Road, Jacksonville 11, Fla.

BAKE NEW Greaseless Doughnuts In Kitchen. Sell stores. Free recipes. Irving, 3605 South 15th, Minneapolis 7, Minnesota.

PIANO TUNING learned at home quickly. Tremendous field! Musical knowledge unnecessary. Be independent! Information free. Empire School of Piano Tuning, Champaign, Ill. (Founded 1935).

MARKETS EVERYWHERE. Make Artistic concrete birdbaths, pottery. Best coloring. Home workshop. Hundred varieties. Hollywood Cementcraft, 8527-E Wonderland, Hollywood 46, Calif.

$34.70 TWO HOURS. Manufacturing Concrete Products. No Selling. Castings #6, 2907 Dundee, Rapid City, South Dakota.

FREE BOOK "990 Successful, Little-Known Businesses." Work home! Plymouth—6N, Brooklyn 4, New York.

MAKE $46 FROM Square Foot Plywood; Jigsaw necessary. Free Details. Woodet, Bridgewater, Mass.

CASH FROM Sawdust, Tin-Cans, Newspapers. Over 200 methods. Instructions $1.00. Charles Company, 42-EPW, Norwood, Ohio.

$200.00 MONTHLY. SPARE Time. With Tablesaw, Bandsaw or Jigsaw. Write. Holiday House, 7227 4th Plain, Vancouver, Washington.

GROW MUSHROOMS. Cellar, shed and outdoors. Spare, full time, year round. We pay $4.50 lb. dried. We have 29,000 customers. Free Book. Mushrooms, Dept. 183, 2954 Admiral Way, Seattle, Wash.

REPAIR HYDRAULIC Jacks — Excellent full or part time opportunity. Free details: Write Hydraulic Parts Supply, 8200 Dyer, El Paso, Texas.

DEALERS WANTED for the fabulous Bug Kart in Minnesota and North Dakota. Aggressive dealers who can sell, service and stock these fast moving Karts. Bug Distributors Inc., 2702 E. 25th St., Minneapolis 6, Minnesota.

OPERATE PROFITABLE Mail Order Business. Everything furnished. J-E-X, Box 411-M, Oklahoma City 1, Oklahoma.

MAIL ORDER Franchise. No experience needed. Spencer Gifts, a well-established and successful mail order firm, starts you in business. Supplies catalogs with your own name imprinted. No investment in stock. No shipping merchandise. Catalog items pre-tested for salability. Initial investment of less than $50 can get you started. Write for Free information kit. Spencer Gifts, HJ-53, Spencer Building, Atlantic City, N. J.

LEARN EXPERT Cake Decorating, Candy Making. Free Details on home instruction method. Candy & Cake, Dept. 761, Fallbrook, California.

PACKAGE AT Home For Profit! We supply everything. No selling, ready market. Free home business details. HPC, 2212RM Jesse Street, Los Angeles 23.

$75.00 WEEKLY POSSIBLE mailing catalogs. Roe, 2317C Marshall, Chicago 23, Ill.

• • • HELP WANTED

FOREIGN JOBS—Latin America, Alaska, Canada, up to $1500 monthly. Up-to-date 1960 Foreign Service Directory gives complete information; hot list of firms hiring for Military and Civilian Construction, Aircraft, Oil, Exporters-Importers, Mining. How-When-Where to apply. 12th successful year. $1.00. Global Reports, Box 8873-MI, Los Angeles 8, Calif.

AMERICAN—OVERSEAS Jobs. Higher Pay. Transportation — Benefits. Men-Women. Act Now!! Write: Employment Headquarters, 79 Wall Street, Dept. 22-A, New York 5.

FREE INFORMATION — USA Overseas Jobs, High Pay. Transportation. Futures, Dept. L, 215 West 34th Street, New York City 1.

LATEST INFORMATION — Civil Service jobs—mechanical, clerical, professional —overseas, U.S.A. List $1.00. Civil Service Bulletin, 115R Haypath Road, Plainview, New York.

JOBS ON Ships and Yachts traveling Foreign Countries. Davenport's, 1354-M, GPO NY 1, NY.

MAKE EXTRA Money selling advertising matchbooks. Free catalog and sales outfit. Matchcorp, Dept. MI-110, Chicago 32.

JOBS, SHIPS, $100 Weekly, Beginners, Seamans Service, Box 17-8, Brooklyn 8, N. Y.

• • • MONEYMAKING OPPORTUNITIES

MAKE EXTRA Money—Big Cash Commissions plus premiums for you and your customers. Sell Advertising Book Matches—sensational new Tenorama, Glamour Girls, Hillbillies; dozens others. All sizes—Quick daily sales; big repeat business. Free Master Kit makes selling easy—no experience necessary. Superior Match, Dept. FX-1160, 7530 Greenwood, Chicago 19.

MAKE $5,000 YEARLY sparetime raising mink, chinchillas, nutria, etc. Free booklet reveals proved plans. Write: Furs, 588 Mt. Pleasant Road, Toronto 3, Canada.

EASY TO start Rubber Stamp business at home in spare time. Make up to $9.80 an hour without experience. Facts Free. Write Roberts, 1512 Jarvis, Room CR-4-L, Chicago 26.

MAKE MONEY Writing Short Paragraphs. Information Free. Barrett, Dept. C-78B-X, 7464 No. Clark, Chicago 26.

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 15, 715 Ensor St., Baltimore 2, Md.

EARN $240.00 A Month at home, spare time, doing only two $5.00 Invisible Mending jobs a day. Big money paid for service that makes cuts, tears, disappear from fabrics. Steady demand. Details free. Fabricon, 6256 Broadway, Chicago 40, Ill.

DETECTIVES—EXCELLENT Opportunities. Experience unnecessary. Detective Particulars free. Write, George Wagoner, 125-J West 86th, New York 24.

NEW MAGAZINE shows you how to make mail order pay. Free details. Mail Order Business, Dept. M-105, 550 Fifth Ave., New York 36.

BECOME INDEPENDENT with your own franchise business. Thousands earning handsome incomes. Request interesting facts today. National Franchise Reports, MX-528, 333 North Michigan, Chicago 1.

BUSINESS OF your own. Earning potential as high as $40,000 annually. Issued on $12,500 base. No merchandise to buy. Send for free explanatory booklet. Harrell & Company, Box 8-FF, Louisville, Ill.

SHELLCRAFT SUPPLIES. Highest Quality, Lowest prices. Large Catalogue, 25¢, Pace's, Cortez 3, Florida.

MAIL LETTERS Featuring Real Merchandise—Get $10 orders in every mail—$8 profit. Everything furnished. Write: The Mailerette, 1502 South Lowell, Santa Ana, California.

MAKE MONEY Writing Short Paragraphs! No tedious study. I tell you what to write, where and how to sell; and supply list of editors buying from beginners. Many small checks add up quickly. Write to sell, right away. Send for free facts. Benson Barrett, Dept. C-78-X, 7464 Clark, Chicago 26.

START BIG-PAY Business At Home in spare time. No experience needed to operate little table-top machine for bronzing baby shoes. Make $5.46 profit on every pair. Full particulars free. Send postcard to Mason, 1512 Jarvis, Room CM-4-L, Chicago 26, Ill.

POLISH GEM Stones for me. Everything furnished. Details and sample gems $1. Wilkie. 9791-M, Oleander, Fontana, Calif.

START YOUR Own Business On Credit (U.S. and Canada). Your own boss. 1396 Dealers sold $5,000 to $25,500 in 1959. We supply stocks, equipment on credit. 200 home necessities. Sales experience unnecessary. Pleasant profitable business backed by world-wide industry. Write Rawleigh's, Dept. K-U-MOM, Freeport, Ill.

GOOD INCOME from home typing—17 proven ways! Detailed information $1 (refundable). Ryco Service, 210-J Fifth Ave., Suite 1102, New York 10.

GET LISTED for life! Receive hundreds free magazines, samples, special offers. Rush 25¢, stamped, addressed envelope. Columbia, 45-09-IM Broadway, Long Island City, New York.

MAKE BIG Money with fast-selling line self-help Manuscripts—many titles! Imprints available; drop shipments if desired! Complete details to Established Mailorder Dealers only! Economy, Box 2580-MI, Greensboro, North Carolina.

$1,000.-$10,000. YEARLY POSSIBLE, raising Fish Worms! Full, sparetime! backyard, garage, basement, spare room. Sell your crop to us! Send name to: Red Wigglers, Warsaw 8, Indiana.

MAKE MONEY Clipping Newspapers. Write Newscraft, MI-983-E. Main, Columbus 5, Ohio.

MEN-WOMEN! START Money-Making Plastic Laminating Business at home in spare time. Material that costs 11¢ brings back $2.58. No canvassing or selling but mail orders bring in $20 a day. Write for full particulars Free. Rush name on postcard to Warner, Room CL-4-L, 1512 Jarvis, Chicago 26, Ill.

SECOND INCOME? Request free details. Sanchez, Dept. U2, 240-22nd Avenue, San Francisco 21, Calif.

• • • PROFITABLE OCCUPATIONS

VENDING MACHINES—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog Free! Parkway Machine Corporation, Dept. 16, 715 Ensor St., Baltimore 2, Md.

FREE PICTURE Folder, "How to Make $3,000 Yearly, Sparetime, Backyard, Raising Earthworms!" Oakhaven-3, Cedar Hill, Texas.

DETECTIVES—MAKE Secret Investigations. Interesting occupation. Write, George Wagoner, 125-J West 86th, New York 24.

$5,000 FROM HALF Acre growing Ginseng, crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

SHARPEN-SCISSORS, PINKERS. Inexpensive outfit. Clipper sharpener. Blackhawk, Sheldahl 6, Iowa.

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JEEPS—$223.00, TRUCKS—$212.00, Tractors—$68.00, Tools, Guns. Typical Government Surplus Prices. Buy Direct. List Of Depots, Procedure, Full Details Only $1.00. New York Enterprises, Wall Street, Box 402-H10. New York 5.

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NEW DELUXE Multicolor wholesale catalog, automobile catalog and others. Nationally advertised merchandise. Housewares, appliances, refrigerators, freezers, washers, dryers, television, radios, rugs, furniture, sewing machines, clothing, luggage, binoculars, phonographs, musical instruments, recorders, cameras, projectors, typewriters, power tools, toys, notions, sporting goods, watches, jewelry, novelties, vitamins, drug sundries, cosmetics, books, school supplies, practically everything. Famous brands. Huge discounts up to 40 to 70%. Postcard: Selbyco, Decatur 7, Illinois.

LARGEST WHOLESALE supply in U. S. Free catalogs. Furniture, clothing, appliances, housewares, automobiles and accessories, farm equipment, tools, hobby supplies, new products, imports. Free details. Associated Wholesalers, Box 2068M-2, Sioux City 4, Iowa.

FACTORY PRICES! Thousands Nationally Advertised Products. Typewriters, housewares, jewelry, watches, appliances, television, cameras, etc. New factory buying plan saves up to 40% below wholesale. Details Free. Factory Supply Company, Bloomfield 11, New Jersey.

WORLD'S LARGEST wholesale supply. Buy from 679 American, European, Japanese wholesalers. Tailormade suits from Hongkong. 123 Dropship catalogs. Rockbottom prices. Free details. International Buyers, 216-MI Jackson, Chicago 6, Illinois.

FREE! WHOLESALE Toy Catalog! Big Savings on Hundreds of Nationally Advertised Toys for Christmas. Housewares Distributors, 1216-Y West 79th St., Chicago 20, Illinois.

100,000 PRODUCTS WHOLESALE! Terrific bargains! United Wholesalers, 1265-X Broadway, New York 1, N. Y.

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EXPERIMENTERS: NEW! Bigger Catalog and "Experiments Booklet." Only—25¢. Hagenow Laboratories, Manitowoc, Wisconsin.

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FREE LARGE formula catalog, outstanding issue. Western Chemical, P. O. Box 3155, Salem, Oregon.

FORMULAS, ALL Kinds. Latest. Best, Literature, Stamp. Kemistry, Park Ridge, Illinois.

EXCLUSIVE MANUFACTURING Formulas and Processes. List Free. Moon, Martville, N. Y.

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GOLD-SILVER DETECTOR. Latest types. Five models including transistors. Violites for tungsten, etc. Geiger Counters. No finer instruments anywhere. Free Information. Detectron, Dept. 11-A, Sylmar, California.

TRANSISTORIZED M-SCOPE unexcelled detecting treasures, gold, silver, etc. Lightweight, supersensitive, dependable. From $59.50, Easy Terms. Free Catalog. Fisher Research, Dept. C-4, Palo Alto, Calif.

TRANSISTOR TREASURE Detectors, underwater detectors. Many models. Free catalog. Gardiner Electronics Co., Dept. 3, 2545 East Indian School, Phoenix, Ariz.

MI Classified Advertisements

TREASURE! MAP, Handbook, 25¢. Locators. Howe, 811 Kansas, Atchison, Kansas.

• • • OF INTEREST TO WOMEN

MEN! WOMEN! 60% profit on cosmetics. Famous nationally advertised Hollywood cosmetics pay 60%. Make $25 day up. Hire others. For free samples, details, write Studio Girl, Glendale, California, Dept. 500I1JX.

MAKE $25 TO $35 weekly addressing envelopes. Our instructions reveal how. Glenway, Box 4568, Cleveland 1, Ohio.

MAKE MONEY weaving rugs at home for neighbors on $89.50 Union Loom. Thousands doing it. Booklet free. Union Loom Works, Dept. 22, Boonville, N. Y.

LEARN EXPERT Cake Decorating, Candy Making. Free Details on home instruction method. Candy & Cake, Dept. 762, Fallbrook, California.

LADIES: EARN up to $2.00 hour sewing babywear! No house selling! Send postcard to Cuties, Warsaw 58, Indiana.

• • • OFFICE SUPPLIES

AMAZING NEW Checkwriter, weighs ten ounces, yet does the work of machines costing up to $500.00. Lasts a lifetime. Only $9.95. Guaranteed mechanically perfect or money refunded. Send check or money order to John T. Benjamin, Box 75437, Sanford Station, Los Angeles 5, California.

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COLORED OR White 8½x11 Offset $6.50—1000; $18—5000. Fast! Glaser, 8 West 45 St., New York City 36.

1,000 BUSINESS CARDS, "Raised Letters" $3.95. Samples. Pioneer, MI-11, Island Park, N. Y.

MIMEOGRAPHING SERVICE U.S.A. Swanson, 834 (Y) Harvey Road, Toms River, New Jersey.

1000 BUSINESS CARDS, "Raised Letters" $3.75 postpaid, Samples. Routh, MI10 2633 Randleman, Greensboro, N. C.

OFFSET PRINTING. 1,000 8½x11 $5.50. Alpine, Box 676-GP, Cupertino, California.

• • • PRINTING OUTFITS & SUPPLIES

PRINTING OUTFITS, type, supplies. Send dime for illustrated supply book and samples. Kelsey, Inc., H-57, Meriden, Conn.

MAKE YOUR Own self-molding rubber stamps and printing cuts. Plastirubber, Argyle 3, Wisconsin.

RUBBER STAMP Outfits. Supplies. Kiewiet, 2025 Barney Road, Kalamazoo, Michigan.

• • • RUBBER STAMPS & MARKING DEVICES

FREE RUBBER Stamp Catalog. Pocket, 3 lines $.60. Alti, Box 1063, Concord, Calif.

3 LINE RUBBER stamp 50¢, catalog 10¢, Fleetline, P. O. Box 364, Hinckley, Ohio.

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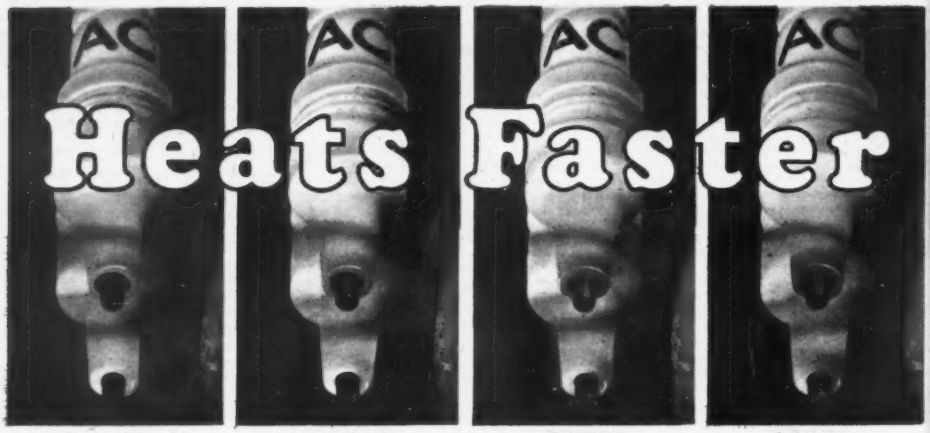
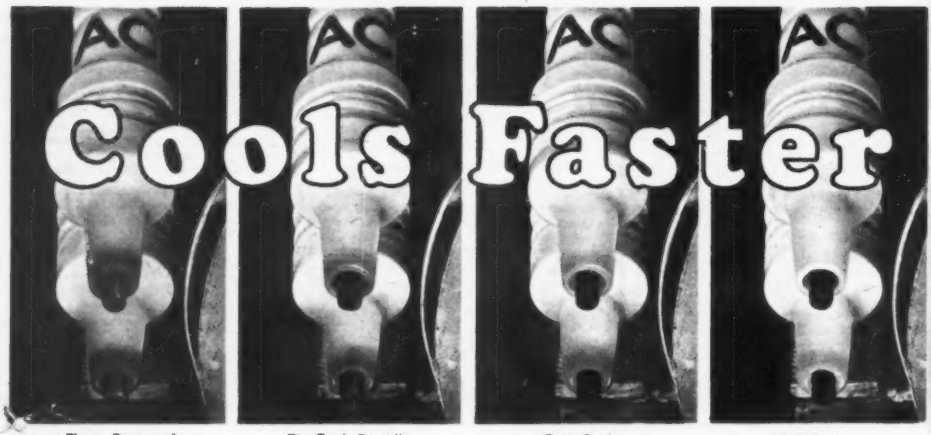


Hot Tip (at top) | Heats Rapidly | Gets Hotter | Still Hotter



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AC SPARK PLUG — THE ELECTRONICS DIVISION OF GENERAL MOTORS

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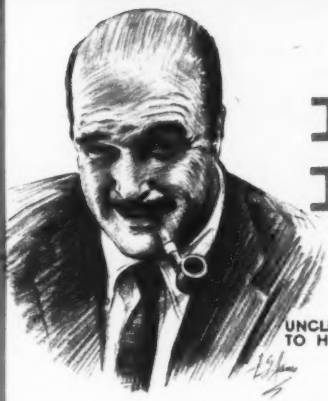

MAIL FOR McCAHILL

UNCLE TOM ANSWERS HIS MOST INTERESTING LETTERS IN THIS COLUMN. WRITE TO HIM AT *MECHANIX ILLUSTRATED*, 67 WEST 44TH ST., NEW YORK 36, N. Y.

Uncle Tom, my 1960 car needs new shock absorbers, according to the Service Manager, and the car has less than 15,000 miles on it. I say this is pretty disgraceful, don't you agree?

Fred R. Lilly
Baltimore, Md.

Your car had disgraceful shock absorbers the day it was delivered. Practically all American cars have original equipment shocks just a hair better than quarter-inch rubber bands but not nearly as good as half-inchers. On one 1960 balloon I own, I threw away all the shocks that came with it and installed heavy-duty jobs that changed the car from a glider into an automobile.

Last week my car was stolen. I immediately reported it to the police. The next afternoon I took a ride through the neighborhood and found it a short distance away. The next night an attempt was made to steal it again. What I'm writing to you about is this. Are there measures I can take to prevent my car from being stolen, besides garaging it?

Walter McMurray
Woodhaven, N. Y.

Sure. Hire a Pinkerton man to sit behind the wheel.

Saw you on the "Jack Paar Show" the other night. Now here's a question a lot of people would like to know the answer to, and as you're a good reporter, let's have it—"What is Jack Paar really like?"

Arthur T. Ferris
Philadelphia, Pa.

This may come as a surprise to some people but after being on the show with Jack and watching him prepare for it, I can assure you that regardless of how much dough they pay him, it isn't half enough. The electricity and pressure in the air an hour or more before show time, until Hugh Downs says "And here's Jack!" is strong enough to light up the city of Chicago and bring a regiment of SS troops to their knees. Every night, in an hour and three-quarters, Paar puts out more effort than any guy I've ever known working a full 40-hour week. I was the most amazed guy in the world because I'd always thought the show was so easy and casual—believe me, for Paar, it's murder.

The other night I heard a radio announcer having a tough time saying "Kennedy's candidacy." Do you have any good tongue-twisters?

Vito Mariello
Newark, N. J.

If you can say "Silvery, slippery, slithery cypress swamp" three times at a normal pace without reading (in other words, do it from memory, bub), send a note to NBC—they need you.

I understand that cars in the near future will not only have aluminum brake drums but aluminum wheels as well. Have you tested any of these? The reason I ask is, knowing how aluminum deteriorates around salt water, I wondered how this sort of equipment will stand up on heavily-salted roads during the winter months. If the wheels did powder and erode away, they might be pretty dangerous.

Horace W. Keating
Denver, Colo.

I've never tested any aluminum wheels, though I did make a number of tests some years ago of magnesium wheels and found them to be excellent. I also know how aluminum can powder away. Other metals in contact with aluminum around salt deteriorate very quickly. I assume that any manufacturer making aluminum wheels will take these factors into consideration and protect them, either through heavy anodizing or some similar method. Rover of England has been very successful using aluminum in construction and so has Rolls-Royce.

[*Continued on next page*]

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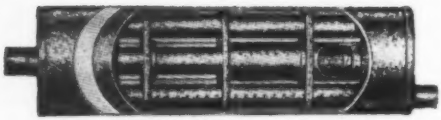

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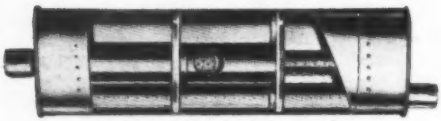

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Mail For McCahill

[*Continued from page* 47]

I want to have my car painted with that new paint that never again has to be waxed. I've tried a lot of paint shops but they all say it is only factory-done. Could you tell me if there is such a place and where they are located?

Anthony De Crescenzo
Brooklyn, N. Y.

I don't know of any such place and doubt if the factory does, either, after reading the instruction manual of one Big Three car I tested. Their ads stated "No more waxing, polishing, etc." but their instruction book tells you not only how to wax the car but advises you to be sure to use their wax when you do it!

After we ordered our 1960 car and after we had it undercoated, the salesman told us that undercoating does more harm than good. If this is on the level, then why didn't he tell us before?

Kathy Altott
Salem Depot, N. H.

The salesman sounds like an idiot, although it is true that body shop repair men don't like to work on an undercoated car. Too bad about them.

It is my considered opinion that it is not so much the widespread acceptance of the widespread styling in the modern American automobile, as the widespread vacuum between the average driver's ears, which contributes to the widespread havoc on our highways today.

William Plaisted
Norristown (Trooper), Pa.

You said a widespread mouthful.

[*Continued on page* 50]

Cast Bottles To Waves

Peculiar bottles with rubber stoppers and long wires have been cast into the sea by scientists from the Virginia Fisheries Laboratory. Instead of floating on the surface, these bottles sink—as intended—to the ocean floor. There, it is hoped, they will drift along with bottom currents so that, when found again, their migration may give scientists a better knowledge of these currents. Fishermen and dredgers have been asked to watch for bottles that may be picked up by their gear. Those who return the cards found in the bottle can receive 50 cents for each card returned to Woods Hole Oceanographic Institution, Wood Hole, Mass.

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TRANSMISSION: Exceptionally lightweight, automatic transmission* with aluminum housing and many aluminum parts. It works on a "dual path" principle. When cruising, about 70 per cent of the driving forces go through a turbine torque converter and 30 per cent through a planetary gear set. This way you get the go and gas savings of geared transmission with the smoothness of turbine drive. And for stick-shift levers there's an action-packed Synchromesh transmission that's as delightful for gas savings as it is for git.

PROPELLER SHAFT: The Special's new Hide-Away drive shaft lowers the hump, gives more flat floor space, greater foot room and softer seating for the "man in the middle." A special "constant velocity" universal joint keeps driving power flowing to the differential with perfect smoothness.

SUSPENSION: Here's a real luxury feature in new-size cars — full-coil suspension — the same type used on the full-size '61 Buicks. Front stabilizer bar and a new link-type rear mounting stabilize the ride perfectly, giving flatter cornering and a smooth "all-day" ride. The Special also uses the same hydraulic shock absorbers, front and rear, as the larger Buicks.

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MODELS: A handsome four-door sedan and an amazingly roomy four-door station wagon with convenient full-height liftgate.

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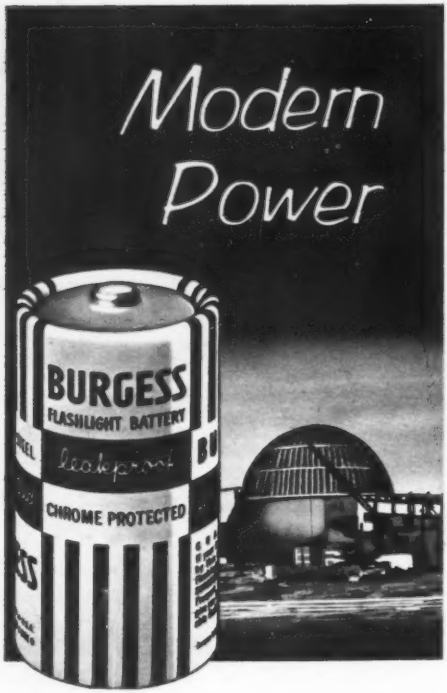

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Mail For McCahill

[*Continued from page* 48]

Wish you'd write a feature article about the false economy of the foreign cars. Fifty-five bucks for a Volkswagen starter and 24 bucks for a Simca voltage regulator, to name a few of the unreasonable prices for parts. Sort of knocks the "economy" pitch in the head, doesn't it?

Fred Yoder
Hutchinson, Kan.

As we've pointed out on these pages many times in the past, a true economy car is economical in more ways than gas consumption alone. Depreciation is the Number One factor to be considered in economy of operation. For some years after World War II the Cadillac was the cheapest car in America to buy and own because it was hard to get and as a result a one or two-year-old Caddy in top shape could be resold quite easily for its original purchase price—I know, I did it. By the same token, the VW has a remarkable resale value. Many VWs three and four years old now are bringing higher prices than three or four-year-old American cars that cost two to three times as much originally. This makes the Volkswagen an economy car, not just the fact that it gets 35 miles out of a gallon of gas. Incidentally, the average price in the east for a VW starter is $30, in exchange for your old one. Besides, what would anyone want to keep the old one for, an anchor?

I'm afraid that after driving Hawaii's 45 mph maximum that when I take my car back to Stateside turnpike speeds it will break down like Khrushchev running the 440 high hurdles. How can I de-gum the engine so it will take some real road punishment?

Irving Baker
Waipahu, Hawaii

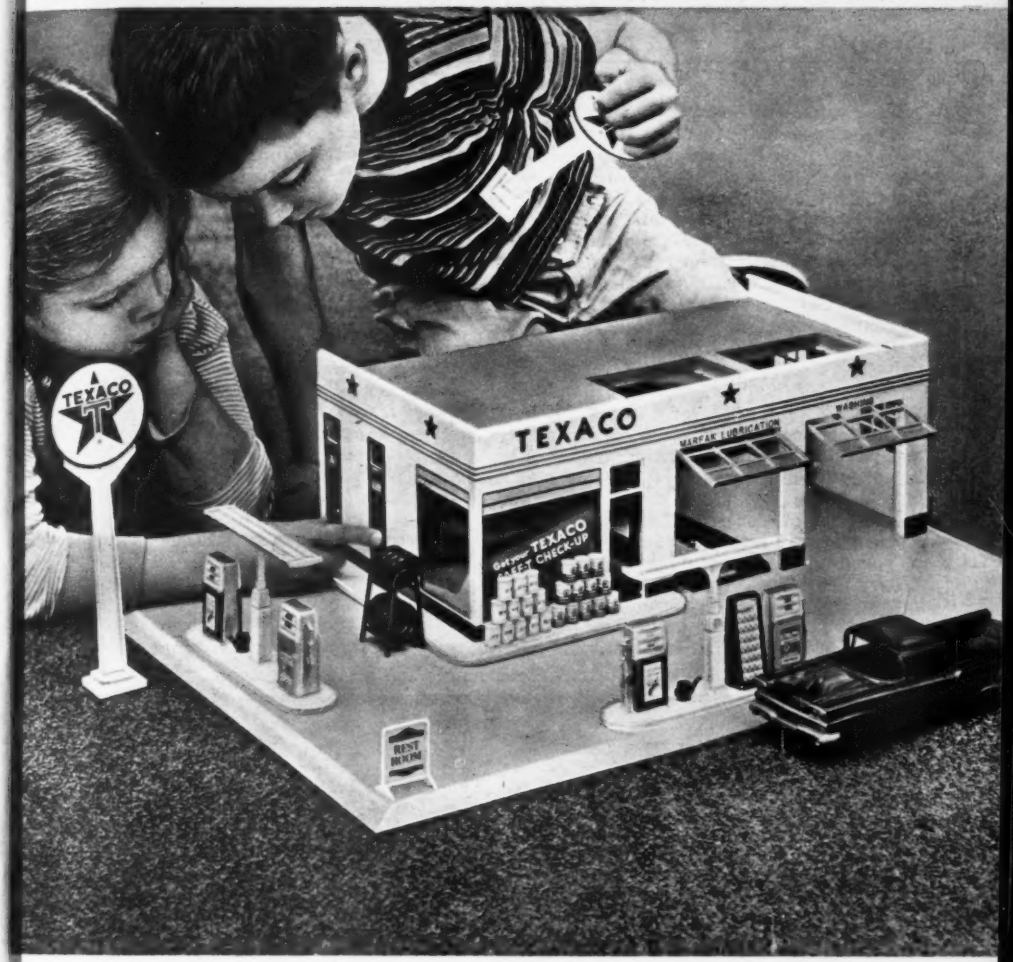
The most common way for "blowing out" an engine that has been subjected to too-slow speed running is to run it a while on what straight stretches you have in a lower gear. Another means of protection is to use a good oil additive. A few miles on the turnpike will straighten it out.

[*Continued on page* 52]

Furnace Hotter Than Sun

Heat nearly three times that of the sun's surface can be produced by a furnace at the Naval Ordnance Laboratory White Oak at Silver Spring, Md. The electric arc furnace is being tested for use in the study of new materials for rockets. Its electric arc can generate temperatures up to 27,000° F.

Gift idea from Texaco—for now, for Christmas!



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Order now...lay away for Christmas. See your Texaco Dealer.

[Continued from page 50]

Being a faithful reader of yours, when the following argument came up among me and a few of my friends I immediately offered to refer the question to you. The question is: Under what conditions, if any, is it better to use low gear with automatic transmission when braking down a hill, and when should the brakes be used? Does the habitual use of low gear on short hills do any harm to the transmission? I need your answer to regain my reputation, which is quickly losing ground as a result of my controversial stand on this matter.

Bob Lander
Scarsdale, N. Y.

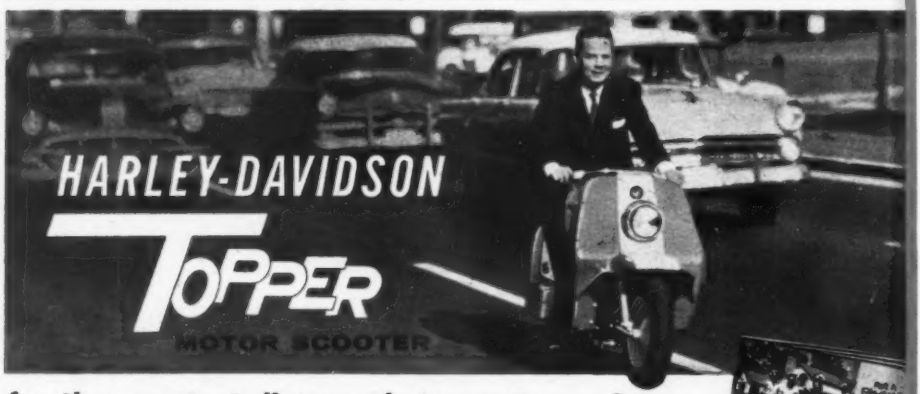
A lot depends on the pitch of the hill. On long, steep mountain descents (especially ones I'm not too familiar with) I use low gear to prevent brake fade. On some extreme grades I've been on, the car gets moving too fast even in low gear, so I hit the brakes to bring down the speed and then rest the brakes as long as possible. With some transmissions you can do damage by letting the car run away too fast in low, so the brakes should be used as part of the team to keep the car from running away. It's far better to hard brake quickly, bringin the car down to slow speed, than to keep th brake halfway on for an extended period. Jus the slightest riding of the brake on a lon descent will cause fade in most cars.

While scanning through the March 196 issue of MI, I noticed that a fan of yours aske if a modern V8 engine could be run flat-ou for 100 miles. You answered by saying th "no high performance car made in Americ could run as much as 20 miles in absolutel stock condition flat-out." You also said th mufflers would burn off and the engine woul blow. I think I have found a clog in you reasoning. In your road test of the 195 Plymouth Fury you stated that you drove flat-out for over 40 miles. How come the en gine didn't blow up or the mufflers burn? Als in regard to the test that Buick has just mad that car was driven over 10,000 miles flat-ou Please explain.

Jay Freer
Oconomowoc, Wi

"Flat-out" usually means an open throttl

[Continued on page 54]



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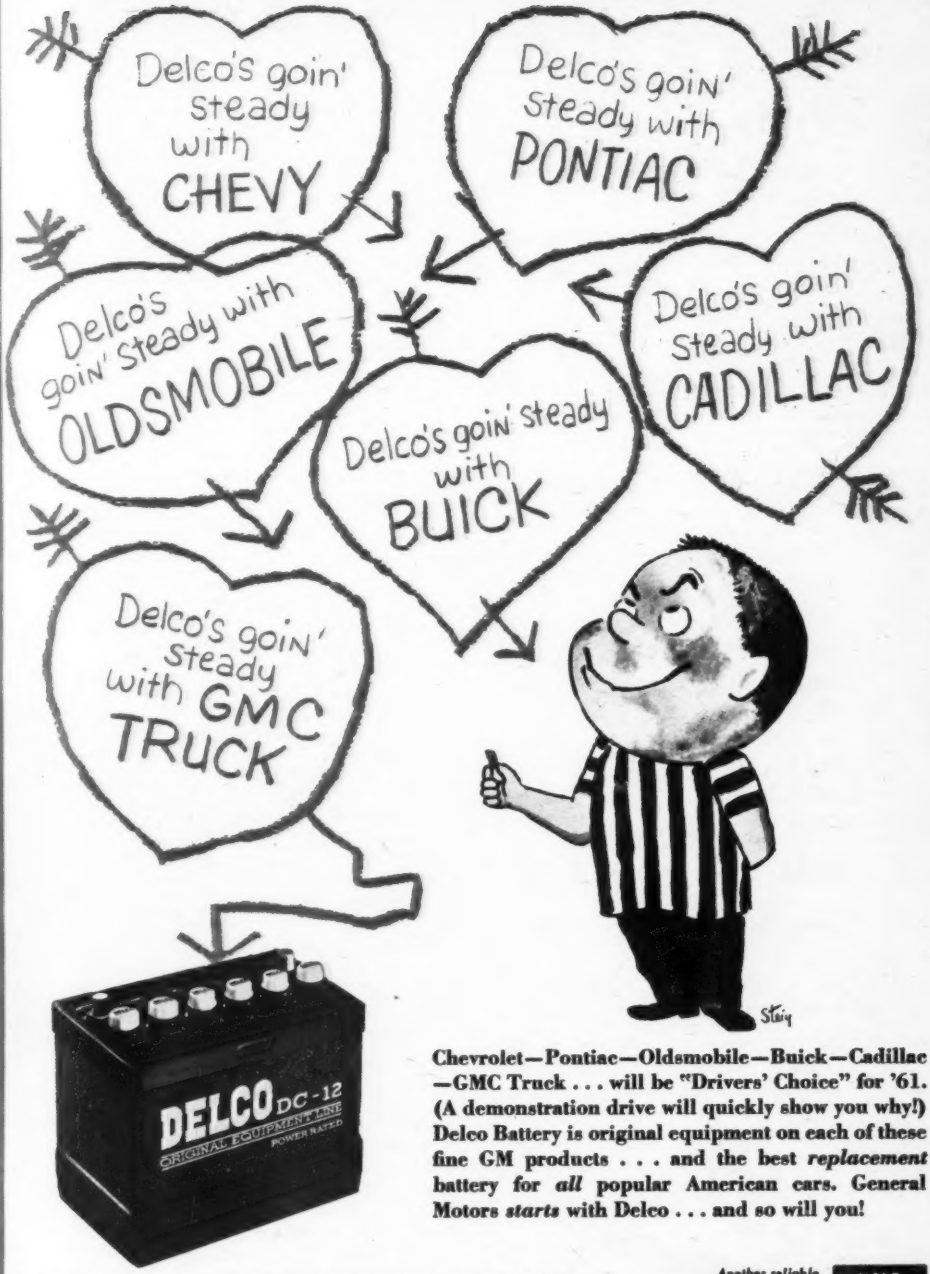

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Mail For McCahill

[*Continued from page* 52]

with no rest periods. "Flat-out" on a race track means getting around as fast as you can. In my Plymouth test I "breathed" the engine several times each lap of the track at the Chrysler Proving Grounds. This cooled the hot spots and the vacuum created by being off the throttle for just a second or two allowed raw gas to cool the piston tops. At the same time, oil was sucked up by the extreme vacuum for an extra load of moving-parts lubrication. "Breathing" an engine, as most readers know, means taking your foot off the throttle for a second or two, then getting on it again. During the 10,000-mile Buick test the engines were rarely run flat-out for more than a few seconds and they were breathed constantly. Also, the speed of just over 120 mph was a good ten mph slower than they were capable of going. Incidentally, the Buicks ran without mufflers.

We have a Valiant and when feeding it the gas it makes a "ping-ping." My husband's buddy says that we should switch brands of gas. What do you say?

Mrs. Blanche Vetrano
Wheeling, Ill.

Your husband's buddy may be right. My 300F is very particular about what brand of high-test gas it uses. It pings like hail on a bald

[*Continued on page* 56]

Heat, Humidity Hurt Hearing

Heat or cold, combined with high humidity, reduce a person's ability to hear well, Prof. Lucia C. Morgan, speed specialist at the University of North Carolina, reported at the national convention of the Alexander Graham Bell Foundation for the Deaf. She said research she performed with others at Louisiana State University, and other work at Michigan State University, disclosed hearing is most keen at 50° F. with a relative humidity of 70 per cent.

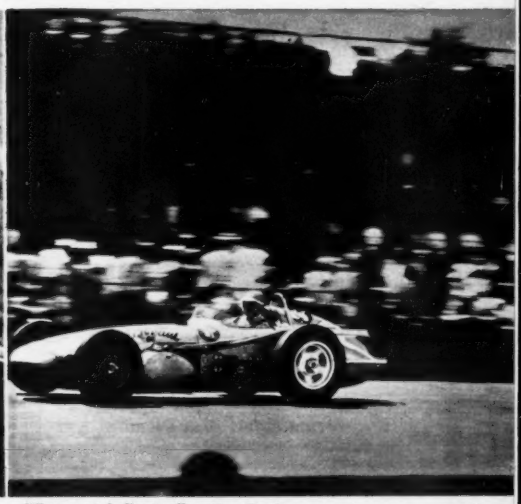
Moon Gardening Grows

Teen-age scientists in 47 states and three foreign countries are attacking the menu problems of space travelers by growing "moon gardens," according to the Republic Aviation Corp. The company is conducting its own experiments on raising vegetables under low atmospheric pressure such as might be encountered in a lunar greenhouse. A handbook on moon gardens the company published for young scientists has been requested by about 1,500 persons, including an adult with the return address of the Attica, N. Y., prison!

Winner at Sebring: John Bentley (above) Index of Performance winner, and 6 out of 10 class winners used Champions.

Winner at Daytona: Junior Johnson wins the 500-mile Sweepstakes. *Every* Daytona winner has used Champions.

Winner at Charlotte: Joe Lee Johnson wins the first World 600 with Champions. 8 of the first 10 to finish used Champions.



Winner at Indianapolis: Jim Rathmann sets a new record to win the "500". Like 10 of the last 11 "Indy" winners, he chose Champions.

Q. Why do winners of 9 out of 10 major races use Champion spark plugs?

A. Experts know they can depend on Champions to wring every bit of performance out of every drop of gas. Your car will perform better, too (and save money on gasoline) with new Champions. Put in a set every 10,000 miles.

Worn spark plugs waste lots of gas—so check your plugs every 5,000 miles!

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Mail For McCahill

[*Continued from page* 54]

head on the third or super-super pump gas of one make but can run perfectly on just normal high-test of some other makes. Your Valiant is supposed to run on regular gas without pinging, and I'm sure it will, but not on all regular gas—shop around until you find one that suits your car.

I am planning on buying the Sunbeam Alpine which you have tested. However, if it is possible, I would like to have you answer a question concerning this automobile. You said in your article that you were "strongly thinking of buying one." Why didn't you?

S. Veitch Jackson, Jr.
DeKalb, Ill.

My quarterly tax return.

I have read that an automobile engine is usually most efficient at approximately 40 mph. Yet I have also read that I would get more miles per gallon at 30 mph and even more at 20 mph. Can you explain this, please?

Wes Pelley
Miami, Fla.

Your question is entirely too general. Engine size, gear ratio and car weight are all factors to be considered. So is cam design. For example, my Mexican Lincoln averaged almost two miles per gallon better at 80 mph than it did at 50 mph! This was due to cam design. Generally speaking, though, on level roads most American cars will get their best mileage somewhere between 28-40 mph.

—Tom McCahill

Insecticide Helps Pianists

An effective insecticidal spray solution for the control and prevention of carpet beetles and clothes moths that feed on the wool felt parts in pianos has been developed by the U. S. Department of Agriculture in cooperation with the Piano Technicians Guild. The new solution is inexpensive to produce commercially and easy for technicians to apply. It is colorless, evaporates rapidly and leaves no odor.

Telephone's Pushbuttons Tested

If Americans one day punch telephone numbers instead of dialing them, they may use a phone with pushbuttons in a square with three numbers on a side and the zero below the middle vertical column. In a Bell Telephone Laboratories test, this arrangement was preferred by users over two vertical rows of buttons, two horizontal rows or a circular arrangement.

Take it from

Frank Gifford

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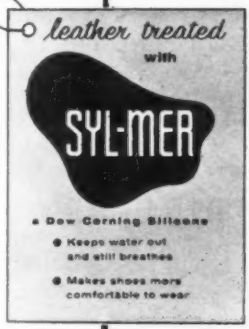

To be sure your feet stay dry while hunting or on the job, insist on boots with the SYL-MER tag. It's your assurance that the manufacturer has taken special care to make the boot truly waterproof. It also means the leather will stay soft and flexible, even after repeated wettings.

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*T. M. Dow Corning Corp.

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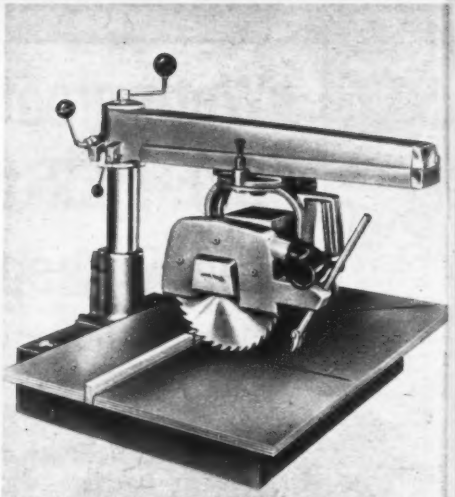

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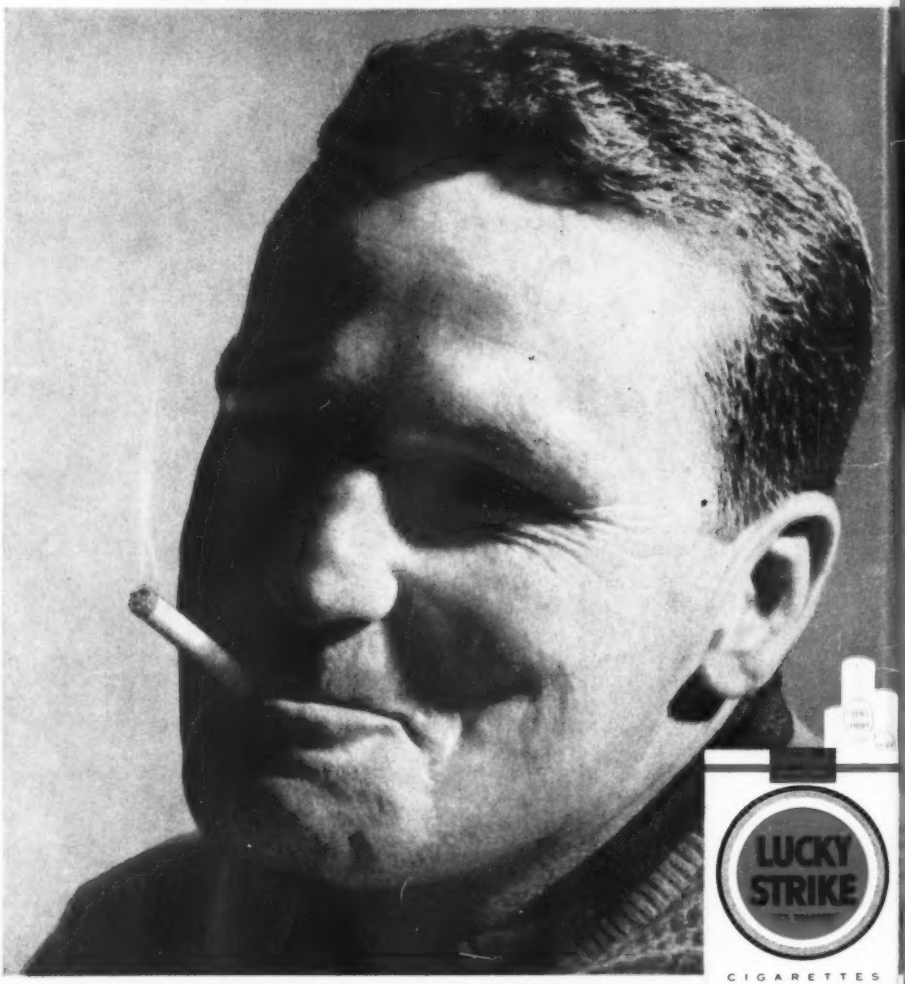

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MECHANIX
ILLUSTRATED
November 1960

TUNE IN ON THE WORLD

By Len Buckwalter

THE night the *Andrea Doria* sank, countless shortwave radio listeners sat glued to their sets, following the sinking and rescue in taut anxiety for the victims of the disaster. It was a sleepless night for many of them—but short-wave listeners lose a good deal of sleep when they happen, as they often do, to pick up some of the invisible excitement that is all around us. And they aren't always mere bystanders, caught up in a helpless involvement.

Take for example, the time MI's own Tom McCahill picked up a boat's distress signal on his Zenith short-wave set and relayed it to a doubting Coast Guard that finally decided he might

SWL GLOBE shows all call letters, time changes, distances. Allied Radio Corp.

SAMPLES of SWL are offered on 45-rpm record: aircraft, ship, ham. Hallicrafters Co.

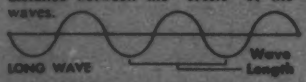
PHILCO T-9 portable has nine transistors, seven bands, six D cells. $230.

really have heard something. They sent two boats out to rescue a sinking fishing craft in one of the most perilous operations of recent years. Another time, when he *couldn't* do anything, Tom heard an Air Force pilot, lost in a storm, talking to a control tower. The plane crashed. There are millions who prefer Lawrence Welk to that sort of thing, and there's something to be said for not having your mind troubled by real happenings. But short-wave listeners *are* involved in the real world.

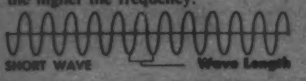
Not long ago, while TV viewers watched fake gunslingers shoot it out in an Old West that never was, short-

How Does Short Wave Differ From Standard Broadcast?

You may often have heard the term "wave length" applied to the radio signals transmitted by a broadcasting station. The signals travel, of course, in "waves"; the wave length being the distance between the "crests" of the waves.



The total number of complete waves (or cycles) that a station can send out *per second* is referred to as "frequency". The broadcasting frequency, therefore, is determined by the wave length on which a particular station is transmitting. The shorter the wave length, the higher the frequency.



Every radio station in the world is licensed to broadcast on certain assigned frequencies or bands of frequencies.

The *standard* broadcasting stations such as those in your home town are assigned to *lower* frequencies, or "longer" wave lengths. The high frequency bands are reserved for other types of transmitting stations throughout the world known as Short Wave Stations.

Why short wave is used for long-distance transmission

The chief characteristic of short waves is their amazing ability to span enormous distances.

The drawings above illustrate the manner in which all radio signals travel in "waves" as they leave the transmitter antenna. Some of the signal "hugs" the ground, while the rest travels upward and outward away from the earth.

When they reach the ionosphere region of tiny refractive particles 7 250 miles above us, the signal either be "absorbed" into the i sphere *or* "bent" back toward e Certain higher frequencies will right through the ionosphere wi being refracted toward earth, o sorbed.

Longer waves are mostly absorbe

The longer waves of standard br cast are almost entirely absorbed the ionosphere; therefore the sig you hear are primarily the short tance, "ground" waves.

These provide a clear, sharp s in your local area. Thus two sta several hundred miles apart are to operate during daylight hours the same frequency without ser interference.

From "Amazing World Of Short-Wave Listening," Hallicrafters Co., Chicago, Ill.

NATIONAL NC-60 has five tubes, built-in speaker, covers 540 kc-31 mc. $60.

RCA STRATO-WORLD portable is nine-transistor job offering six short-wave bands, AM. $195.

ZENITH Trans-Oceanic offers nine bands with weather-navigation. $275.

wave listeners heard a field reporter gasp out an on-the-scene description of the capture of Richard Carpenter, accused of shooting a Chicago cop. Gunfire, shouting and confusion of the real event made the background music.

At night, more of the longer waves are refracted from the ionosphere; this explains why you may occasionally pick up a standard broadcast station clear across the country.

How short wave uses the ionosphere

Short waves, for the most part, are *not* "absorbed" into the ionosphere; they are refracted downward toward the earth. As these waves strike the earth, they are again deflected upward to the ionosphere. Once again they are "bent" back toward earth.

As shown in the diagram, this process is repeated again and again over tremendous distances; in each area where

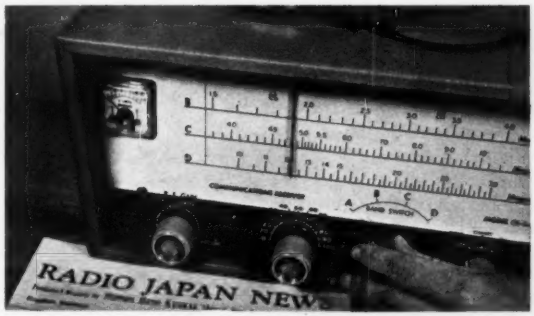
short wave signals "bounce" off of the earth, they can be heard on short wave receivers.

Since the ionosphere is constantly changing, it produces varying degrees of refraction and thus better or poorer short wave reception. These ionospheric changes also account for variation in reception from summer to winter and from daylight to darkness.

That is why, on short wave radio, you sometimes experience fading or flutter, and why you may hear Istanbul tonight as clear as your local station, and perhaps not at all tomorrow.

However, each country has many short wave stations, and thus there almost always is something wonderful to hear from anywhere in the world!

BULOVA Spacemate is midget standard short-wave receiver priced at $59.95. Includes leather case, whip antenna, earphone and jack for an external speaker.



SUPERHET receiver is this Philmore CR-5AC. Available in kit form for $39.95. Metal cabinet is $7.95 extra.

But SWL (short-wave listening) isn't all eavesdropping on catastrophes. Hundreds of high-power stations fill the international wavelengths with programs of every kind. Care to hear the noon newscast from London? Interested in what the French are beaming to North Africa—in French *and* English? Got a sneaking interest in what Moscow is sending over here, in flawless English and on a powerful beam?

And most of the eavesdropping is downright fascinating. You can hear fishing boat skippers swapping salty comments; hear "beeps" from man-made satellites; hear radio hams gossiping between Australia and Brooklyn, between Europe and the next township to you. Join me and all the other SWLs (short-wave listeners) as we Tune In On The World.

If by now you're dying to get in on the fun, it only remains for this old SWL, who has been hooked on this wild and woolly listening for years, to clue you in with enough technical advice to tell you how.

What you need first is a receiver—and a beginner should start out with an inexpensive set. SWL equipment starts at around $17 and runs up into the hundreds; the costlier equipment is worth the difference but the low-cost stuff can give you a lot for the little you put into it. When you tune in your Junior Scientist set you can get the same faraway stuff they get on the rich boy's sets and the thrill may be even bigger. That's because you *can* get distant stations on the cheaper set although you don't get them so consistently. The reason is in the wild tricks that short-wave radio signals can pull. (A radio signal doesn't mean dit-dah exclusively. It means whatever you receive that is transmitted, be it Morse Code or Elvis Presley.)

Short-wave radio signals don't travel along the earth's surface growing weaker as they go. They bounce. Taking off from a transmitter they rip out into the atmosphere. Some 200 miles up they smack into a vast electrical mirror called the ionosphere. There the short wave is deflected, like a pingpong ball glancing downward off the ceiling. In one of these upside-down bounces a signal can travel

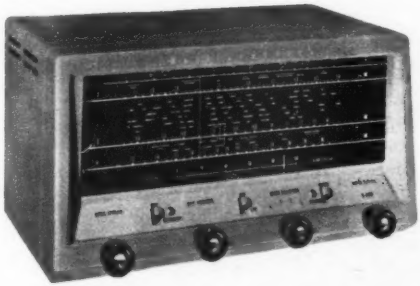
ARVIN portable offers short wave, long wave and AM. Seven-transistor, one-diode lineup operates on eight batteries. $100.

GONSET Super 12 converts car radio into short-wave receiver. It mounts under dash and plugs into the antenna jack. $69.50.

COLUMBIA 625 has AM, FM and short wave via two speakers and eight tubes. Tuning by a "magic eye." Ebony finish. $119.95.

HEATHKIT Mohican can be used as portable or fixed station. Ten-transistor circuit; eight-battery power supply. Kit is $100.

LAFAYETTE KT-200 is $64.50 superhet in kit form. Features "S" meter (upper left) for tuning. Wired receiver sells for $80.



HALLICRAFTERS S-38E superhet receiver covers 540 kc to 32 mc. Dial face shows countries, ham bands, etc. Price: $59.95.

thousands of miles. When the angle is right, signals come barreling into your antenna with hardly any energy loss—and that's when your modest SWL set gets the way-out listening. When you hear the smartniks talk about "good radio conditions" they mean conditions in the ionosphere that produce these results. These conditions vary with the time of day, the season, and with the onset of those violent solar storms called sunspots.

What the experienced (and convinced) SWL addict pays for in the more expensive set is better sensitivity, selectivity and bandspread. Sensitivity is the ability to pull weak stations out of the background noise. Selectivity is the ability to separate stations that overlap. Bandspread stretches the stations out over the dial; the cheaper set's tuning dial tends to whiz by the stations.

The cheaper type of set is the *regenerative* set. It has plenty of sensitivity and can be a hot performer at times but it has poor selectivity where strong stations are close together. Tuning the regenerative set is trickier: the knob must be set at a critical point for best reception of each station.

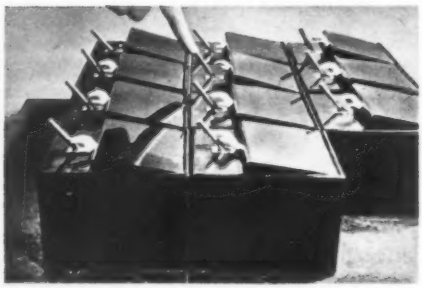
The ritzier set is the *superheterodyne* or superhet. The superhet begins at the $50 level (less in kit form) and climbs in price as features are added—more stages, crystal [*Continued on page* 156]

KNIGHT Span Master affords complete coverage of short-wave bands. Easily assembled kit sells for $25.95. The Home-Crafts-Shop Section of this MI tells you how in words and photos.

MONEY MAKING IDEA

POYNTING the way to success for young men who dare to be a bit wackier than the rest: the idea man at work.

Everything's CRAZY But The Profits



MYSTERIOUS black box with weird green hand fascinates buyers, sets them back $5.

BOURBON TOOTHPASTE: the added liquor flavor sold a million tubes at $1 a tube.

AND the profits are crazy too, if you mean like, "Crazy, man." The whiskey-flavored toothpaste has sold more than 1,000,000 tubes and the dry-cleaning bag that turns into a dress-up costume for the kids has sold 15,000,000. That gives you the idea. Cincinnati's Don Poynter, 33-year-old boy genius of the novelty business, needs no one to give *him* ideas. He is the originator of the Jayne Mansfield-shaped hot water bottle, the powder-horn handbag for women, the Do-It-Yourself Voodoo Kit, artificial fingers and ears and perfumed manure.

Poynter started out as a puppeteer and became a radio actor at 13. Besides doing time in high school, college and the army he has made money as a drum major, card trickster, ventriloquist, juggler, tight wire artiste, unicyclist, TV and movie producer-director. For a spell he did his baton-twirling turn on tour with the Harlem Globetrotters. Today he is an advertising executive, president of four corporations and the producer of some of the nuttiest merchandise in America, Land of the Gizmo. He keeps busy but has fun. His latest success is the black box with the lever. Touch the lever and the lid slowly rises, a hand comes out—and turns the damn thing off and retires. So beautifully Poyntless! •

Willie Mosconi Tells You...

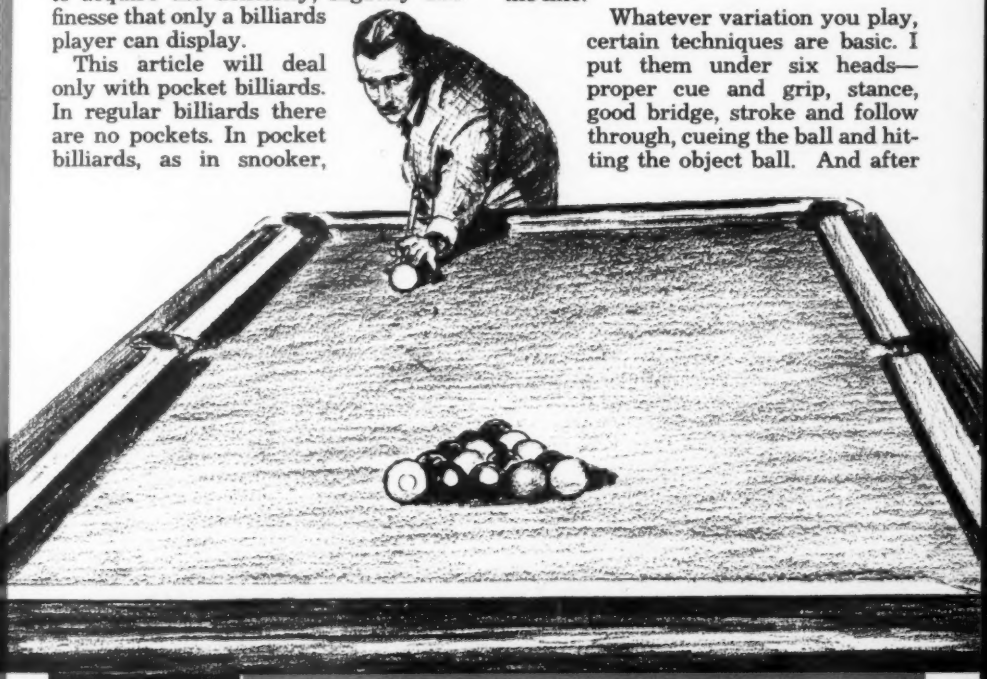
HOW TO WIN AT POCKET BILLIARDS

By Willie Mosconi
as told to James H. Winchester

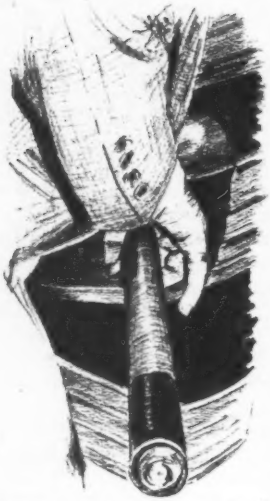
BILLIARDS is staging a comeback in the U. S. More and more of the big bowling centers are putting in tables in response to the growing demand for them; more and more new players long to acquire the dexterity, sagacity and finesse that only a billiards player can display.

This article will deal only with pocket billiards. In regular billiards there are no pockets. In pocket billiards, as in snooker, there are six pockets—one in each corner of the table and one on each side. Pocket billiards is played with 15 object balls, numbered from one to 15, and a white cue ball. Each player or side tries to pocket eight of the 15 balls to win. However, there are a great number of variations of the game, sporting names like Golf, Cribbage, Mr. and Mrs. and the like.

Whatever variation you play, certain techniques are basic. I put them under six heads—proper cue and grip, stance, good bridge, stroke and follow through, cueing the ball and hitting the object ball. And after



MOSCONI is the name in pocket billiards. Since 1941 he has had a virtual monopoly on the world championship, having held the title 15 times. Nowadays the 45-year-old champion tours the country as an advisory star for the Brunswick Corporation, makers of bowling and billiard equipment. The drawing above shows how he makes an opening shot, in which two object balls must hit the cushions. The One and Ten balls, at base corners, will hit the bottom and right hand cushions.



GRIP lightly with the thumb and three fingers at a point three or four inches behind the balance point. Balance cue in your hand before using it.

STANCE should be taken about a foot away from table; see text for positioning of feet. Bend forward at hips with weight evenly set on both feet for easy balance.

BRIDGE for all shots within easy reach where bridge hand can rest on bed of table. Bridge must be as firm and tight as is consistent with free movement. Always keep cue level.

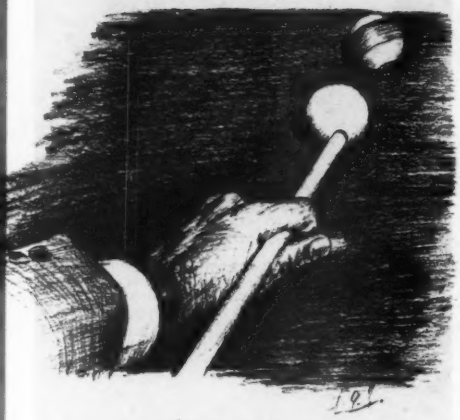
these half-dozen basic techniques, I might add that ability to concentrate is all-important. Never let your opponent distract you. A good one will always try!

But getting back to the basics:

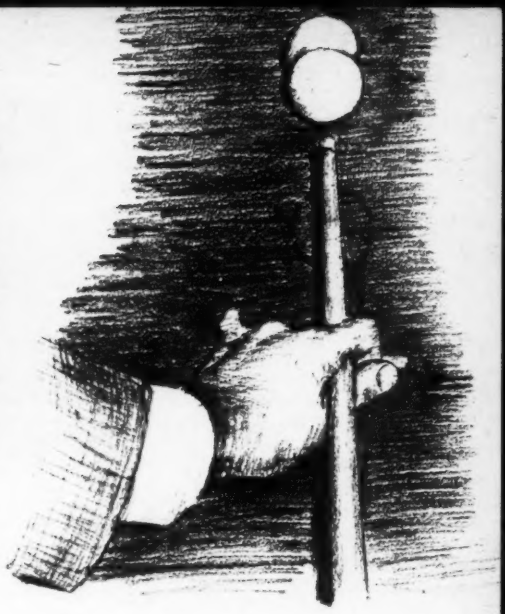
Cue and grip. You should use a lot of care in selecting a well-balanced cue. It should not be butt-heavy. The best weight is between 18 and 21 ounces. The length of the cue depends on the individual; I've found a cue 57 inches in length best for pocket billiards. If the cue is too short, you get into trouble when you have to stretch far out over the table to make a shot.

Having selected your cue, you find its balance point by laying it across your fingers and sliding it along until the weight of the butt end balances the weight of the shaft. Having determined this fulcrum point, grip the cue four or five inches behind it. Grip the cue lightly with your thumb and first three fingers.

Stance. No two players stand exactly the same at the table. The best bet is to stand balanced and comfortable, with



ENGLISH, or spin, is achieved by striking cue ball to right of center for English to left. Reverse procedure for English to right.



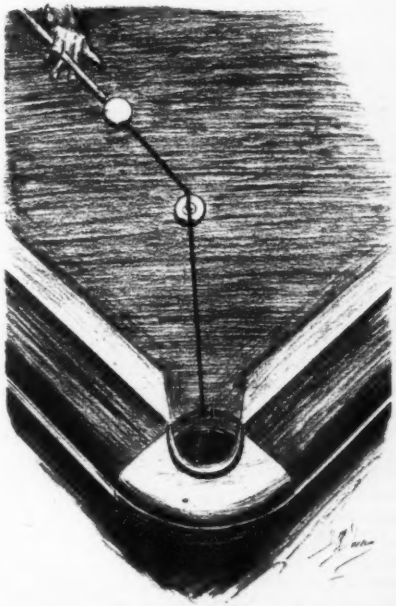
FOLLOW THROUGH and the cue tip will travel through the area the cue ball occupied. Develop deliberate follow-through.

your head over the cue in the line of aim. Stand back from the table about one foot, with your right foot in line with the cue ball. Now, turn your left foot about 30 degrees to the right. Move your right foot back until the toe of your right shoe is opposite the middle of your left shoe. The right foot is pointed at a 45-degree angle from your original position. This way, standing erect, you can swing your right arm, holding the cue, in line with the cue ball and the object ball.

Now bend forward at the hips, with your weight distributed evenly on both feet. This way your body can move forward slightly with the stroke, helping you to follow-through.

Your left arm is extended straight to the bridge position, the left elbow is bent very slightly, if at all. Try not to bend it.

This position varies, of course; if your ball is frozen to or close to the rail, you stand farther back from the table. But remember—your head is always over the cue in the [*Continued on page* 166]

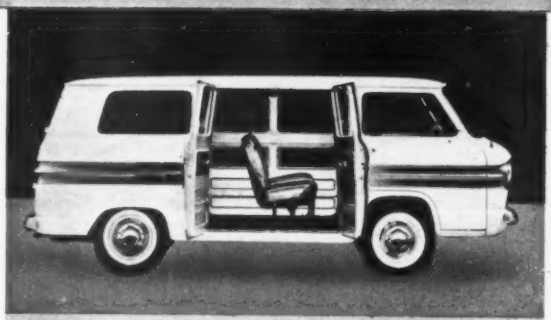


POINT OF AIM on object ball is found by picturing a line, from the center of the pocket, that bisects the object ball.

MORE '61 CARS!

CORVAIR

FIELDS nine models for '61, including several surprises. One is the new Lakewood station wagon, above, a rear-engine rig available in regular and deluxe models. In addition to its 58-cubic-foot cargo space, there are ten more cubic feet of storage under the front hood. Another surprise is the snappy 95-inch-wheelbase Greenbrier Sports Wagon with a van-type body, shown just below the station wagon. Corvair cars will come in 500 and 700 models in two and four-door sedans. The Monza, a two-door hardtop with posh appointments and bucket seats, tops the line. The pick-up job at the bottom of the page is also a first for Corvair. The 1961 engines have been upped from 140 to 145 cubic inches. Corvairs can be had with standard three-speed or a four-speed gearbox with automatic transmission or stick shift. Dimensions are generally the same as the '60s. Accessories include a gas heater, two-speed windshield wiper-washer and push-button radio.



OLDSMOBILE

BIG CAR has new look in the 18 models it offers in Dynamic 88, Super 88, 98 series. The 88 models are 5.6 inches shorter than last year; the 98 is 3.8 inches shorter. Wheelbase is 212 inches on 88s, 218 on 98. Engines are 394 cubic inches with four-barrel carburetor as option. A brand-new lightweight Hydra-Matic transmission is also available. Gas tank capacity is 20 gallons.

CADILLAC

SCULPTURED styling gives fine car a new profile. Rear fins are lower and taillights are now paired horizontally. Length is reduced to 222 inches but other dimensions on 11 models are same as last year. The 325-hp mill is also the same. The wheelbase is 129.5 inches. There is a new front suspension system, a single exhaust system and new finned brakes in the front end of car.

THUNDERBIRD

BOWS in two-door hardtop and convertible models, slightly shorter than in '60. Styling features all-new body and chassis with "dual unitized" construction. Grille now slopes inward. Four-passenger T'bird also has new engine—a 390-cubic-inch, four-venturi V8 job that develops 300 hp. A unique "swing-away" steering wheel and column make it easier for driver to get in and out.

MERCURY

DEBUTS with 15 models in Meteor 600, 800 and the top Monterey series. A new six-cylinder, 223-cubic-inch mill—the first in big M history—will be offered in the 600 series. The other power plants are V8 jobs in the 292, 352 and 390-cubic-inch class with a variety of options. Mercury also has new sheet metal work, pre-lubricated chassis, softer ride and better insulation in '61 models.

LINCOLN CONTINENTAL

LUXURY car in four-door sedan and convertible models is smaller than '60 job. The fine car is 212 inches long and has 123-inch wheelbase. Height is 53.5 inches. Styling changes include new grille, lower hood for better visibility. Rear boasts rectangular grille, massive bumper, taillights. The 430-cubic-inch mill is improved as are insulation, riding qualities and suspension.

CHRYSLER

INTRODUCES new lower-priced Newport series with 361-cubic-inch mill, 122-inch wheelbase. Windsor, New Yorker, 300G complete Chrysler line. Windsor sports 383-cubic-inch power plant; New Yorker, 300G have big 413-cubic-inch job. Newport and Windsor come with floor-mounted, three-speed manual transmission. Automatic gearbox is optional. Styling has been sharpened for '61.

AMERICAN

CONVERTIBLE is a brand-new addition to American Motors Corp. line for '61. The 100-inch wheelbase car is 173.1 inches long and 70 inches wide. It stands 56.2 inches high and rides on 6.00x15 tires or optional 6.50x15 rubber. It is available with an L-head six mill which develops 90 hp or an optional 125-hp, overhead-valve six engine with a standard or automatic transmission.

AMERICAN, completely restyled, has added four-door station wagon to existing line of two-door wagons, two and four-door sedans and the new convertible for total of 13 models. Compact American is 5.2 inches shorter at 173.1 inches and three inches narrower than '60 buggy.

RESTYLED sedan also has 100-inch wheelbase, 173.1-inch length and single-unit body like the rest of the line. The 90-hp L-head six is standard on Super and Deluxe models and 125-hp mill comes with Custom models. Buyers can choose standard or an optional automatic gearbox.

RAMBLER

BOASTS sleek new styling. Eight four-door models are included in Rambler Classic Six line and six in Rambler Classic V8 models. Classic Six has new six-cylinder aluminum block engine which develops 127 hp. The 200-hp Classic V8 is available with two or four-barrel carburetors. Wheelbase is 108 inches, length 189.8 inches and height 57.1 inches. Rambler totes a 20-gallon gas tank.

AMBASSADOR

FEATURES new styling, new ceramic-coated muffler and tailpipe, as do all AMC cars for '61. The 117-inch wheelbase Ambassador comes in six four-door models, including two and three-seat station wagons. Three transmissions are available—push-button, optional overdrive and stick shift. Engines are 250 hp with twin-barrel carburetor and the optional 270-hp V8 with four-barrel carburetor.

BRIGHT IDEA
AWARD
MECHANIX
ILLUSTRATED

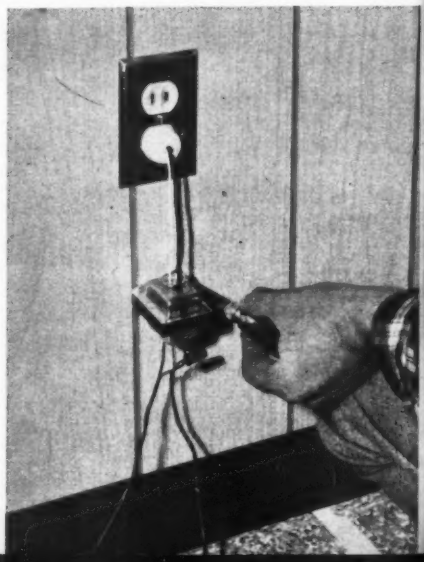
TAPESWITCH mat goes under the regular mat. Fine wire from mat leads to the transformer.

TAPESWITCH MAT

TAPESWITCH electric annunciator kit consists of a 17x23-inch rubberized mat which fits under your doormat, a mount transformer and chime. When hooked up—you mount the transformer near a 117-volt AC outlet and plug it in—anyone stepping on the mat makes the pleasant-sounding chimer chime. Tapeswitch can also be used in stores or at the office. Price: $19.95. Goldsmith Bros., 77 Nassau St., New York. •

TRANSFORMER is mounted near outlet. Wire ends are held together via cap connectors.

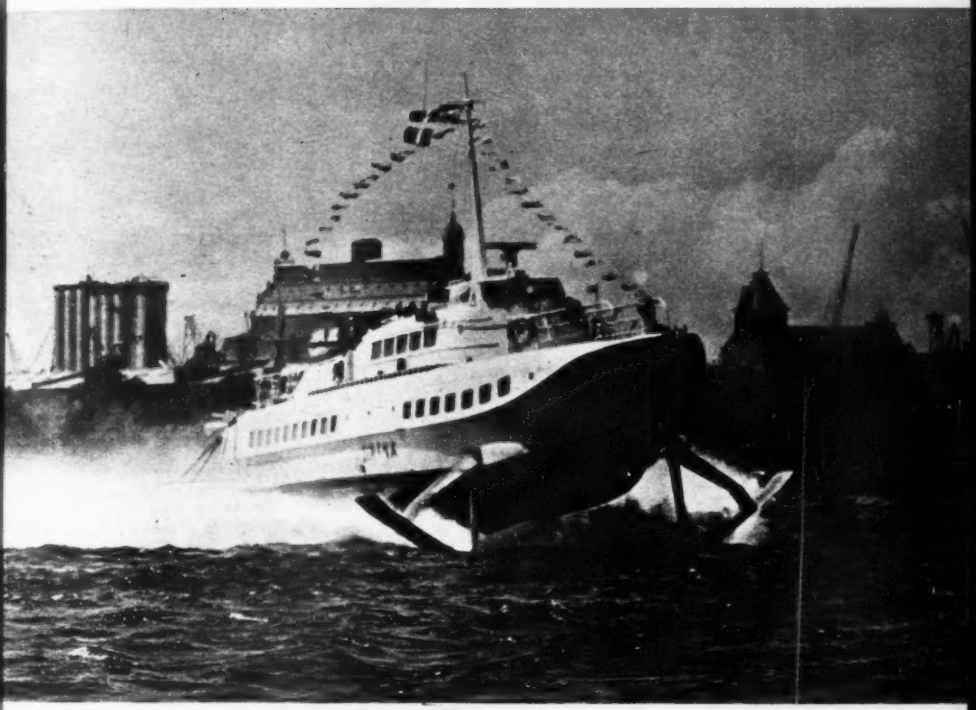
CHIME is mounted with larger end up. It sounds off when outside mat is stepped on.



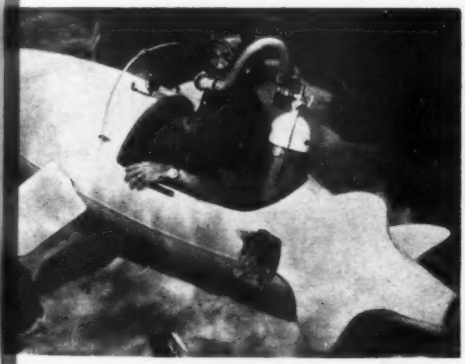
WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

IT'S NEW!



ITALIAN HYDROFOIL, the Sirena, recently did over 45 mph in a demonstration in Denmark.

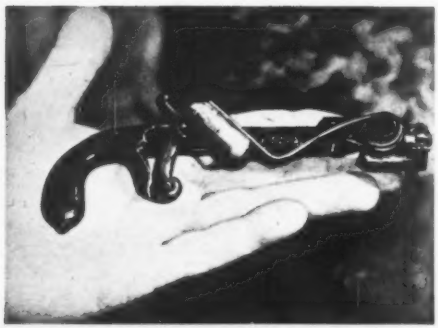


TOW SUB for skin divers is pulled by a surface boat, directed up and down by its forward fins. Scene is Miami Seaquarium.

FULL DOZEN new cars take a ride in new 90-foot double trailer. White tractor has 22-hp diesel, can haul loads up to 50 tons.

CONTINUED . . .

DOUBLE DUTY outboard-powered trailer-boat has only to let down those wheels and hitch up to a car to become a licensed highway vehicle. Note bow coupling.

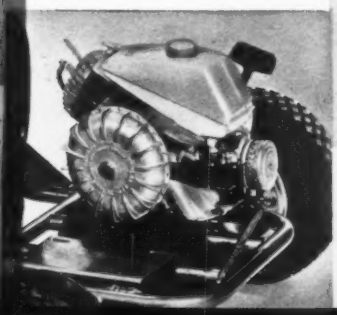


WHATSIT projectile hurler is a puzzle to antique weapons men. Is it a gun, a toy, a tool, what? What did it throw? Gadget was patented in November, 1862.

BIG WHEEL in Vancouver, British Columbia, is this remarkable wheels-within-wheels vehicle. The 100-incher was devised by Bert Hobbis of Westminster, B.C.

CASTRO CONVERTIBLE Harry Vandenberg, a bee-keeper of Elyria, Ohio, converts to Dr. C. by taping a boxed queen bee to his chin and waiting unflinchingly for the swarm to settle. Does it tickle?

FLO-TORQUE oil clutch for karts, mowers, motorized bicycles, and other applications where smooth torque transfer is wanted. Unlike a conventional dry clutch, this unit works in a bath of oil. Its extreme simplicity makes Flo-Torque virtually maintenance-free. Maker: Bowlus Engineering, Box 515, Pacoima, Calif. $24.50 ppd.



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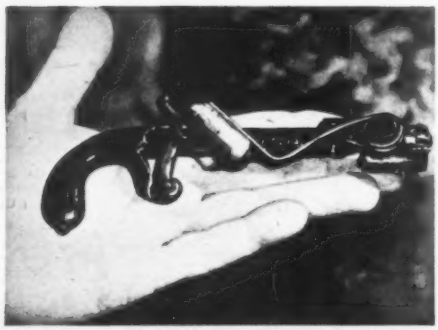
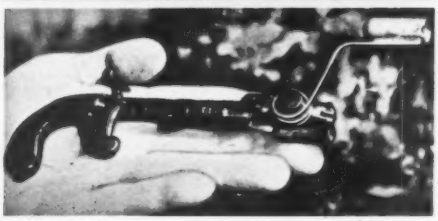


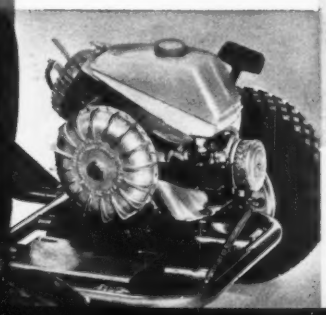


WHATSIT projectile hurler is a puzzle to antique weapons men. Is it a gun, a toy, a tool, what? What did it throw? Gadget was patented in November, 1862.

BIG WHEEL in Vancouver, British Columbia, is this remarkable wheels-within-wheels vehicle. The 100-incher was devised by Bert Hobbis of Westminster, B.C.

CASTRO CONVERTIBLE Harry Vandenberg, a bee-keeper of Elyria, Ohio, converts to Dr. C. by taping a boxed queen bee to his chin and waiting unflinchingly for the swarm to settle. Does it tickle?

FLO-TORQUE oil clutch for karts, mowers, motorized bicycles, and other applications where smooth torque transfer is wanted. Unlike a conventional dry clutch, this unit works in a bath of oil. Its extreme simplicity makes Flo-Torque virtually maintenance-free. Maker: Bowlus Engineering, Box 515, Pacoima, Calif. $24.50 ppd.



SWEDISH FLIER WINS MI TROPHY

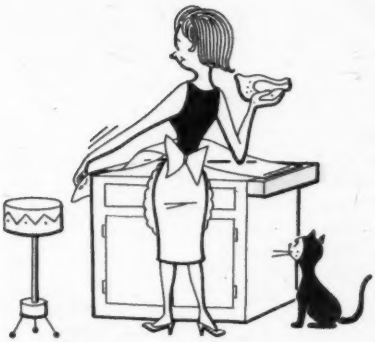
THE MI Trophy for outstanding achievement in aviation, traditionally awarded on behalf of MECHANIX ILLUSTRATED by the Experimental Aircraft Association at their annual Fly-In, this year moved into international circles. The winner was Anders Ljundberg of Norrkoping, Sweden. His achievement was the piloting of a home-built sport aircraft on a 10,000-mile tour of the U. S., promoting the private aviation movement fostered by the EAA. The flight took slightly over 100 hours to complete. • —*Leo J. Kohn*

WINNER in cockpit of Pober "Sport" which took him on 10,000-mile tour of the U. S.

EAA PREXY Paul Poberezny (left) hands MI Trophy to John Micrander, a roommate of the winner and also a native of Sweden.

ANDERS LJUNDBERG was born in Sweden but came to America in 1956. He is an aeronautical engineer, lives in Rockford, Ill.

DRINKING fountain on all water hydrants so that thirsty pedestrians could refresh themselves. Gregory Krauss, Flushing, N. Y.



WAX paper in counter top would unroll, be used as work surface and then torn off, thrown out. Thomas Barnhill, Bethesda, Md.

FAN that rotates in a full circle instead of only half would cool all parts of the room fairly. Larry Satterwhite, Hueytown, Ala.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description on a postcard to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Each one printed will be awarded $5. Entries not selected cannot be acknowledged or returned.

SAFETY GLASS windows to shut off driver's compartment and reduce distracting din of kids. Mrs. John Halsey, Southampton, N. Y.

KART attachments—pontoons for using vehicle on water plus engine adaption and prop. Terry Mohn, Mountain View, Ark.

POISON PLOTTERS were so feared during Middle Ages that noblemen of the period employed food and wine tasters—a job with no future.

DO-IT-YOURSELF ASSASSINS

By Frank L. Remington

A FEW years ago an American housewife disposed of her husband by one of the most subtle murders in the annals of crime. Her method was so diabolically clever that no charges could be brought against her.

In reconstructing the crime, investigating officials believe the wife one day noticed some bubbles in a jar of beans she'd canned. She recognized it as botulism, a deadly toxin that infects preserved foods. Though it was risky, the wife presumably swallowed a drop of deadly liquid from the jar. Next day she downed a few more drops, and the following day still more. Increasing the daily dose systematically over a month's period, she built up her resistance to the point where her system could absorb enough botulism to kill a regiment.

One evening she invited three dinner guests. To everyone, including herself, she served generous portions of the toxic beans. The host and three guests died; the hostess lived. Though undoubtedly guilty, the wife was never accused. There were no witnesses and no tangible evidence to support an indictment.

The housewife is one of a fascinating array of murderers who have dispatched their victims by poisoning. Toxicology, the science of poison, has played an important role in the long history of homicide. There are hundreds of lethal poisons—and thousands of clever methods of administering them to a victim.

Possibly no one is more skilled in poisoning than the Malayans of Asia. One of their favorite methods is to invite the victim to dinner. The host prepares for the visit by smearing one side of a knife with a deadly concoction. The knife is used to cut the watermelon, a customary part of the meal. The host then helps himself to the "clean" slice, passing the contaminated piece to the guest marked for death.

Expert Malayan poisoners have developed toxins for such specialized purposes as swelling tongues, paralyzing legs, blinding eyes or dulling the mind. Delayed poisoning is a specialty. The more proficient devotees mix an esoteric potion, slip it into the victim's food and take off on an extended journey. Because he's far away when the victim dies, the murderer usually escapes suspicion.

WOMEN throughout history have accounted for about 70 per cent of poison murders.

In the days before society developed foolproof methods of detecting lethal toxins, poisoners had a field day. During the Middle Ages most people looked upon poisoning as one of the ordinary hazards of life. Kings, emperors, noblemen and others [*Continued on page* 164]

ENEMIES of Borgia family were invited to shake hands, were then poisoned with ring.

MALAYANS rub one side of knife with poison, give the tainted slice of melon to victim.

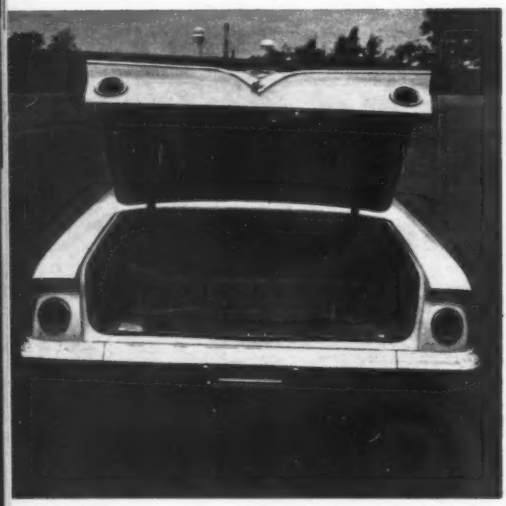
McCAHILL TESTS....

THE 1961 CHEVY

A solid, dependable car with a wide choice of models and options to suit every taste.

By Tom McCahill

CHEVROLET, General Motor's Number One Money Retriever, has sheared its fins for 1961. The hammer-and-snipper boys have re-belted the tinware and trimmed the ears off last year's model, so that now it is quite new but not *really* different in appearance. A block away, you'd still know it was a Chevy thanks to some styling holdovers such as the rolled edges of the front fenders and other touches.



LIGHT split has taillights paired in the fenders and trunk lid, replacing teardrop-shaped lights that were on the '60 model.

DENUDED of batwing fins, the '61 Chevy sports a flat rear deck and square tail. Chrome strip has mild V-dip at the center.

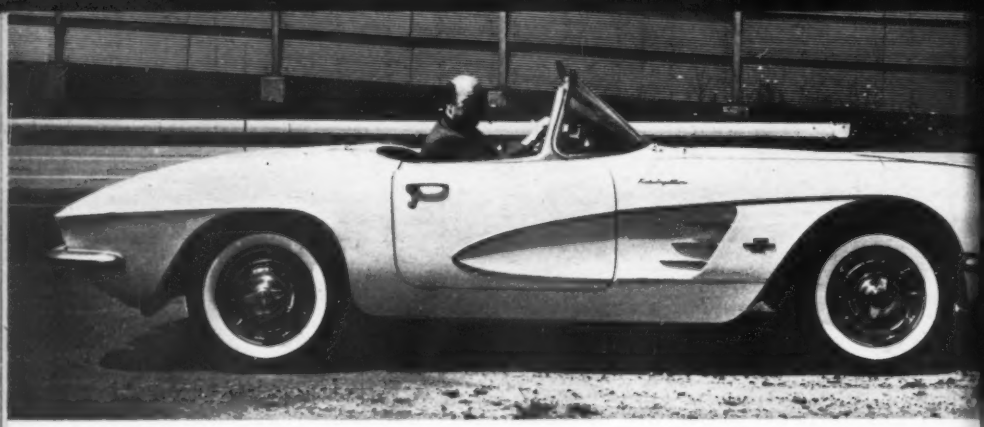
REWORKED grille has parking lights over headlights.

From the stern, the denuded fins have changed the lines considerably. Mechanically, the 1961 Chevrolets are very similar to their older brothers, the '60s. In fact, if you stuck a '61 body on a '60 chassis, your name would have to be Ed Cole to tell the difference. (For the benefit of the boys in the Goggomobil plant, Ed Cole is Head Man at Chevy.)

Frankly, the Chevrolet story this year is similar to the ones I found at its two closest competitors, Ford and Plymouth. It's almost as though the drillmasters of these camps had met over a hot bottle and cold bird and decided, "What the hell, they're good enough the way they are" and gone back to playing with their compacts. You'll find more changes in the compact or small car divisions of the Big Three camps this year than you will in any of their main breadwinners.

I got a good crack at the whole Chevy line and the most interesting job I tested was their "Police" or "Peace Officer's" rig, which was furrier than a two-dollar caterpillar and had all the whack of a 200-pound bow. These special law cars might justly be called "Jake Nascar" or "Friends of France" because the chances are they will be seen in wide numbers on the stock car race courses in the coming months. Powered by the now-well-crammed 348-cubic-inch engine, this little pistol whips out 0-60 mph in 7.8 seconds with a real dragster rear axle of such proportions that it held top speed down to 121.6 mph over a measured course. With a more normal rear sprocket, this job would undoubtedly whiz by 130 mph without effort, but then the acceleration times would not be as impressive. As it is, this is a quarter-horse car, capable of digging a foot-deep pair of slit trenches in Granny's driveway faster than she could toss off her third martini.

The more regular (or let's say, more normal) Chevy I tested was the Bel Air sedan with 283-cubic-inch engine and



CORVETTE: "Better-looking than ever and with its full competition suit—which includes a four-speed box, fuel injection and special cam—it becomes one helluva sports car."

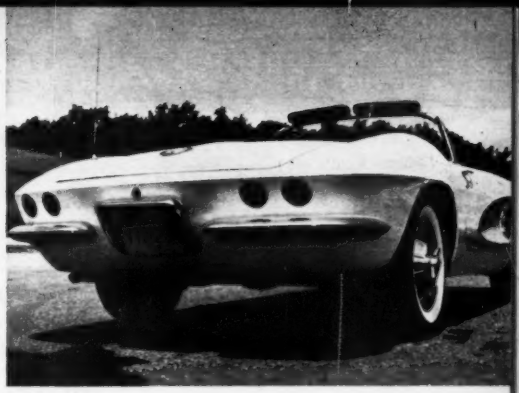
two-barrel carburetor. Now, this job was as stark as a night in a trolley car but as functional as a three-fisted Irishman in a saloon fight. It averaged 0-60 mph in 13.5 seconds and the car I tested had a top speed of 97.29 mph. This isn't bad at all when you consider that this is the economy model with 8.5:1 compression ratio, developing 170 horsepower. The hotter jobs with the 283-cubic-inch engine have four-barrel carburetors, 9.5:1 compression ratio and put out 230 horsepower. Our test car is the rig for the man who wants the most for his money in size, transportation and economy.

The big deal, however, is the general feel over rough roads, through bends and around switchbacks. The handling of the Chevrolet cars has been about as well-standardized as any in the GM camps, which means a compromise of a lot of things. The ride is soft but not too soft. Its roadability through curves and bends is not the greatest, yet not the worst. And the steering properties are good, meaning under all normal circumstances the car will go where you aim it and it doesn't require too much effort. As I buzzed this job around the GM Proving Grounds, I could visualize thousands of buyers who'd be happy with this rig, especially the salesmen and businessmen. Best of all, you can buy spare parts for a Chevy almost anywhere, even riding an ice floe in Hudson's Bay, I'll bet.

Chevrolet slipped the stiletto to its closest rival, Ford, in 1960, jumping back into first place as the World's Automotive Production King. Of course, Chevrolet has, as usual, as many stock models as Diamond has matches. One of their big sellers in 1960 was the old overhead-valve Six that now develops 135 horsepower with a one-barrel carburetor. These jobs are as reliable as lint on a blue serge suit, and economically the best buy in Chevy's big car camp, if economy and base transportation are your major requirements. In fact, like Robert Hall, Chevy has a suit for every size and need, and the Six is their plain, pipe-rack model.

Chevrolet's one failure in 1960 was the buyer apathy toward its compact offering, the Corvair, the most interesting car in the compact field when it was introduced. You don't have to have a news nose like Winchell or Drew Pearson to sense that Chevrolet does not intend to take lightly the snubbing of its baby brother. In fact, while buzzing the Proving Grounds I saw a greater variety of Corvairs than you could find pigeons in Central Park during a bread crumb air raid. The Corvair will have a bigger engine for '61, by five cubic inches, and it will put out a hair more horsepower and a wisp more torque. It will come in three different models, the 500, 700 and 900. There will be three transmissions offered: three-speed manual, Power Glide and four-speed manual. There are strong rumors that heavier shocks and springs will be available on request, as

REARRANGED grille, new nameplates, painted headlamp bezels impart a new look.



SCULPTURED rear end has recessed lights. The long tail has been blunted for 1961.

many felt the '60 Corvair wallowed a bit too much in the turns.

The big deal at Corvair this year, however, comes from different directions. One is the Greenbrier Sports Wagon and the other is the Corvair Lakewood station wagon. There is also a great little pick-up truck on a Corvair chassis. I drove the pick-up with a 1,000-pound load aboard around the GM Proving Grounds and it seemed an ideal rig for city or farm hauling. It is a functional, low-powered working vehicle. The Greenbrier Sports Wagon looks as if someone from Chevrolet was standing around Volkswagen's plan file when the wind was blowing. The Greenbrier is a sleeked-down version of the VW Kombi and looks-wise it's about as sharp a rig of this type as I have ever seen. It has all the room of the Kombi, and maybe a hair more, plus styling.

Another pixie to emerge from Corvair's drafting boards is the new regular-type station wagon called the Lakewood. I recall some wag at a competitor's lodge saying to me over a year ago, "Well, *one* thing Chevy can't do with that Corvair is slap a station wagon body on it." Hang your head, Buster, they did it, and it's good-looking. Corvair for 1961 has a real all-around team of cars to toss into the compact market and it is my bet that the Greenbrier Volkswagen-type bus will prove sensational in this particular field.

Corvette is quite similar to the Corvette of 1960, with the exception of its new re-shaped tail, known as the "Stingray Back." The former long tail-line has been whacked off close, giving the car a blunt but sporty look. As the Corvette is now the only American sports car being built, its limited popularity will undoubtedly continue. It is better-looking than ever before and with its full competition suit—which includes a four-speed box, fuel injection and special cam—it becomes one helluva sports car. Briggs Cunningham backed them at LeMans this year and one of his three entries finished eighth. Two others crashed and failed. Another Corvette, driven by Lucky Casner, finished tenth.

The Cor- [*Continued on page* 163]

TEST CAR SPECS

MODEL TESTED: **1961 Chevrolet Bel Air four-door sedan**

ENGINE: **V8** cyls; **283** cubic ins; **170** brake hp; **275** ft-lbs max torque; **8.5** to 1 compression ratio. Bore **3.875** ins; stroke **3** ins. Fuel required: Regular. Standard axle ratio: **3.08.** Wheelbase **119** ins; length **209.3** ins; height **55.5** ins; width **78.4** ins; front tread **60.3** ins; rear tread **59.2** ins. Weight **3,675** lbs. Gas tank capacity **20** gals. Turning circle diameter **40.8** ft. Tire size **7.50X14.**

PERFORMANCE: **0-30** mph, **4.7** secs; **0-50** mph, **10.5** secs; **0-60** mph, **13.5** secs; **40-60** mph, **5.8** secs. Top speed **97.29** mph. All times recorded on corrected speedometer.

McCAHILL TESTS....

The '61

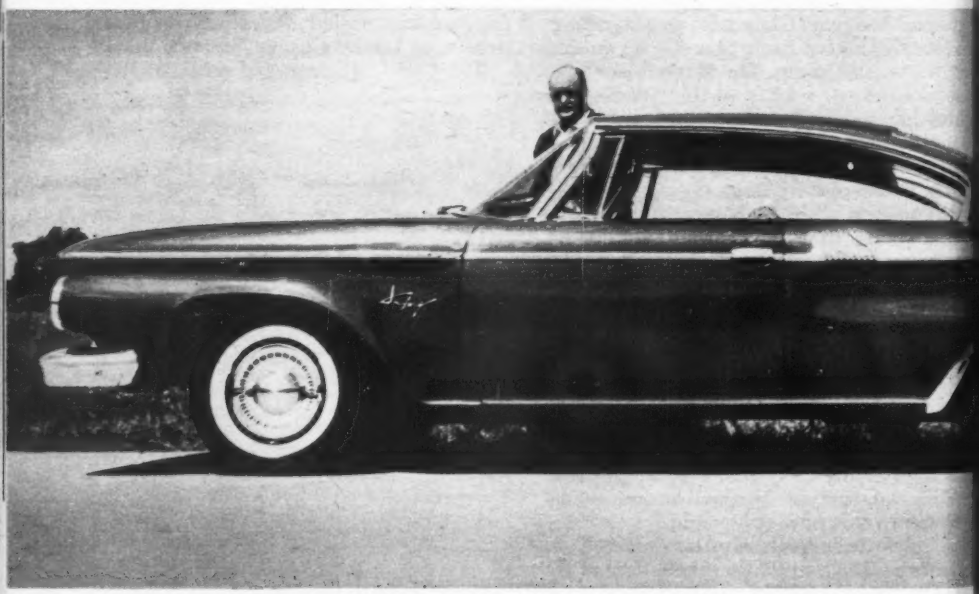
Top roadability, handling qualities make Plymouth the Best Buy in its field, according to McCahill.

By Tom McCahill

PLYMOUTH for 1961 has lost its fins. One of the first boosters in the old fin school, Plymouth has now had its tail turtle-ized so that it quite closely resembles from the rear the offspring that might have resulted from breeding a 1960 stock Chevrolet with a 1960 Corvair.

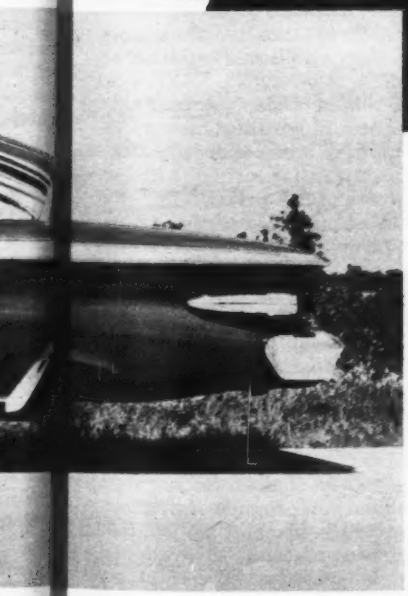
It's now evident that '61 will go down in the automotive history books as the year most American offerings were definned. During the years that the fin design was king, I received thousands of letters denouncing this type of decoration as "stupid, untasteful and meaningless." So now that they're gone on all cars but a few, I'll state as I've stated before on these pages that a well-designed fin can prove a great asset in a car's handling at top turnpike speeds and higher. This is not my theory but one that was proven in wind tunnel tests years ago by Dr. Kamm, the great German designer, who was design consultant for such power greats as the Mercedes-Benz Grand Prix teams. Correctly-designed fins act as stabilizers for keeping a car on course and as a deter-

PLYMOUTH went and did it! No fins will soar on the rear deck in 1961, as you can see.



PLYMOUTH

THAT'S Uncle Tom looking over lengthened hood and slanted grille, smaller than one on '60 car.



TEST CAR SPECS

MODEL TESTED: **1961 Plymouth Fury with Golden Commando Torque Flite engine.**

ENGINE: **8** cyls; **361** cubic ins; **305** brake hp; **395** ft-lbs max torque; **9** to **1** compression ratio. Bore **4.12** ins; stroke **3.38** ins. Fuel required: **Premium.** Standard axle ratio: **3.01.** Wheelbase **118** ins; length **209.5** ins; height **54.5** ins; width **80** ins; front tread **60.9** ins; rear tread **59.7** ins. Weight **3,395** lbs. Gas tank capacity **20** gals. Turning circle diameter **39** ft. Tire size **7.50X14.**

PERFORMANCE: **0-30** mph, **2.9** secs; **0-50** mph, **6.4** secs; **0-60** mph, **8.1** secs; **40-60** mph, **3.9** secs. Top speed **118.42** mph. All times recorded on corrected speedometer.

FINLESS rear deck sports stainless steel strip. Note the jaunty outboard taillights.

SWEEPING chrome curves flare around dual headlights, imparting a distinctive look.

rent to the wobbling effects of heavy crosswinds.

Naturally, at speeds typical in cities and most suburbs, fins have very little practical use because cars are moving too slowly to be affected. On major turnpikes, however, and fast western roads where even the slightest crosswind causes bobble and tail whip, the fins act to steady the whole iron pot. Now there are fins and fins. For example, the bent-over Chevrolet fins of '59 and '60 accomplished very little at high speeds aside from possibly lightening the rear end, which was too light, balance-wise, to start with. Some other fins, including Ford's, were ineffectual from a functional standpoint, but the Chrysler and Plymouth fins were designed for function first and styling as a second thought.

On my first high speed buzz of the tremendous Chrysler Proving Grounds track with the new Plymouth, I noticed the absence of fins as my speed approached 120 mph. When I pulled in, Jack Charipar, Plymouth's Chief Engineer, asked me if I noticed the difference. I told him I did.

Plymouth styling for 1961 is an attempt to get the bigger hunk of the market they have deserved for several years. To do this, it is apparent they felt they had to go along with current popular styling trends. As I've stated on these pages for several years, in my opinion Plymouth is the best buy in the Big Three camp, from a purely engineering standpoint. The bullwhacking of the fins hasn't altered this fact, though I feel the car was slightly better when it had them. Bear in mind, you pixies, I'm not considering looks in the least when I make this statement—just functional properties.

In 1961, Plymouth is tossing together 26 different models to compete for your Yankee dollar; a choice of seven different engines, four transmissions and more colors than you'll find on a wine-presser's feet.

Basically, like Chevy and Ford, things are pretty much the same at the old corral as they were with the 1960 models, from an engineering point of view. Chevrolet and Ford are also sitting this one out, mechanically, as we pointed out in their tests—the same old bones with new zoot suits. Plymouth has dug up a couple of new features, however, and one is the fact that the compression ratio on their 361-cubic-inch Golden Commando V8 has been dropped to 9:1 from 10:1 without any loss in power, still rated at 305 hp. The way this was done was through better carburetion and larger intake valves. There seems to be a slight trend in some camps to reduce compression ratios this year, undoubtedly brought on by the lack of octane consistency in available premium fuels throughout the country,

OBLONG steering wheel is extra as is RCA 45-rpm phonograph for music to drive by.

KING-SIZE rear window was blasted by Tom as rear-seat sunstroke niche for riders.

plus exaggerated octane claims by some fuel companies peddling soup that is little better than lamp oil.

This octane variance (and I can look forward to a stern letter from the Petroleum Institute any minute) often varies from station to station of the same brand. Plunging down deep in your wallet for one of the super, super premium fuels is no guarantee, either, that you're going to get what you pay for. It seems hardly possible that the major oil companies have been diluting their own products, so I must suspect some service stations of cutting the premium stuff with regular for that extra three to seven-cent profit. Regardless, when driving a car such as my 300F Chrysler, I can notice the difference after the first mile when some goon has slipped me a load of petunia juice. This happens about 25 per cent of the time, though I always buy the top premium grade.

One bit of styling that reflects the thinking of the brains in Detroit is the long slanted rear window in the sedans, calculated to burn the rear passenger's skull to the bone if he stays in one position too long. It may be nice style but it's about as comfortable as going to a steam bath for relief on a hot, humid day. Of course, the buyer is offered heavily-tinted rear windows to fight off rear-seat sunstroke—at prices averaging around 80 bucks extra. Ah, what progress this missile age has brought!

My tests of the 1961 Plymouth were all made at the Chrysler Proving Grounds as the models were then too young to be viewed by the public. The interior dimensions are roughly the same as in 1960 and this goes for the station wagon as well. There is a completely new instrument panel that's quite easy to read. You even have a choice of steering wheels—the well-known round type or an oblong job that seems a little strange to handle until you get used to it. One of the big advantages of the oblong wheel is that portly drivers can slide into position easier. Paul Whiteman has one on his 1960 Imperial, which I have driven quite a bit, and though it's not unpleasant, I think I'll stick to the round type for surer emergency handling in a jam.

The phonograph is back with the Chrysler line this year and the deluxe Golden Commando Fury sedan I drove had one installed. Unlike the first offerings of a few years ago which played weird record speeds, these new jobs will take standard 45-rpm records. It is an RCA product. When I bore down a little hard about this phonograph deal, I was told, "Lots of people just want to get away from radio commercials and enjoy some good, uninterrupted music." You can see what this could lead to; when you're really sore at that old bag you married you could slip on the Anvil Chorus. When [*Continued on page* 158]

OUTDOORS with W. Scott Duncan

RABBIT HUNTING

FAR and away the most popular gun sport over most of these United States today is rabbit hunting. It is the least expensive, can be done near home and has all the thrills of the chase. It's a dandy family sport, often enjoyed by the hunter, his wife and his son.

Of all the bunny tribe, the cottontail is the most widely hunted. Target for millions of guns every year. Bre'r Rabbit of the blackberry patch, the hay field, the weedy pasture and the woodlot tests the marksmanship of novice and expert. And he is very well thought-of as a main dish for the dinner table—preferably cooked to a crisp golden brown and served with rich gravy.

More shotgun shells are fired at cottontails than at any other game. This rabbit ranges from the Atlantic to the Pacific, except in certain areas where the climate discourages him. In the far north from Maine through northern New England, upstate New York, Michigan, Minnesota and Wisconsin and a few of the mountain states of the West, the snowshoe rabbit (varying hare) takes over in great numbers. In the plains states it's the long-legged, fast-as-lightning jack rabbit. In the Mississippi Valley from the mouth of the Ohio River to the Gulf the swamp rabbit reigns. Elsewhere look for cottontails.

The kill is only the epilogue to the great fun of rabbit hunting. Most hunters get more out of seeing their dogs in action and hearing their voices on the trail than from shooting. I, for one, wouldn't give one inflated nickel for hunting rabbits without dogs.

I like a well-trained hound with a keen nose. Your dog should be selected with care, for a hound without a good nose runs a lot by sight, is inclined to cold-trail and generally costs you considerable time in the field. But the intelligent, well-trained dog with a fine nose is a wonderful hunting companion. He wastes little time on cold trails but knowing where the rabbits are apt to lie in any cover, even on strange territory, he goes straight [*Continued on page* 143]

mimi

"OK, OSCAR," says MIMI, "I see you, so why don't you slither out right now?" Oscar is a pet rock python, who hides in the darndest places. But wherever he hides MIMI can always find him with her handy Cordomatic Mobile-Lite Reel, which is also a very useful work light for all kinds of jobs. Twenty feet of cord pull out of that round base; the cord locks at desired length, retracts automatically. The base is a firm one for resting the light on fenders, floors or any firm surface, and the universal swivel will hold the spot of that beam on whatever you want it held on. In the handle up near the bulb socket there is an outlet for power tools or appliances. As a garden flood this is a very nifty rig since the outlet will power a rotisserie, hedge clipper, etc. Cordomatic, 17th and Indiana Ave., Philadelphia 32, Pa. $11.

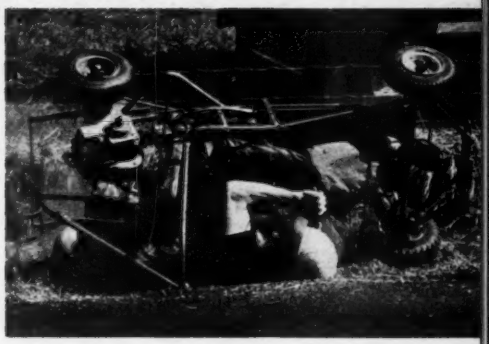
LOOK OUT FOR THE KARTS

SPINNING karter is rammed from the rear.

THRILLS, spills and chills are all part of the game in the still-growing sport of kart racing. Karts are being souped-up and speeds of up to 60 mph are attained on the miniature racing ovals—which means it's not solely a pastime for boys. The intent karters on these pages are shown racing on a track near Martinsville, Ind., just 25 miles from the famed Indianapolis Speedway. The contestants begin the competition with a Le Mans-type running start which does not allow them time to fasten their safety belts on the short track. A fence padded with hay surrounds the course for the overenthusiastic who sometimes spin out, corner too fast or crack up at 30 to 60 mph speeds. ●

DRIVERS gun karts across the starting line.

OOPS! Daring driver starts to roll over after hitting turn at too great a speed.



OUCH! Despite roll over and cramped position driver is unhurt, thanks to roll bar.

SPRINTING drivers head for their karts in the famous Le Mans-type of racing start.

WHOA! Bucking kart rears up on wheels.

DRIVER ends up on grass over the barricade.

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ATLANTIC MINES, INC.
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LET'S MINE THE WORLD'S UNDERWATER WEALTH!

By Frank Tinsley

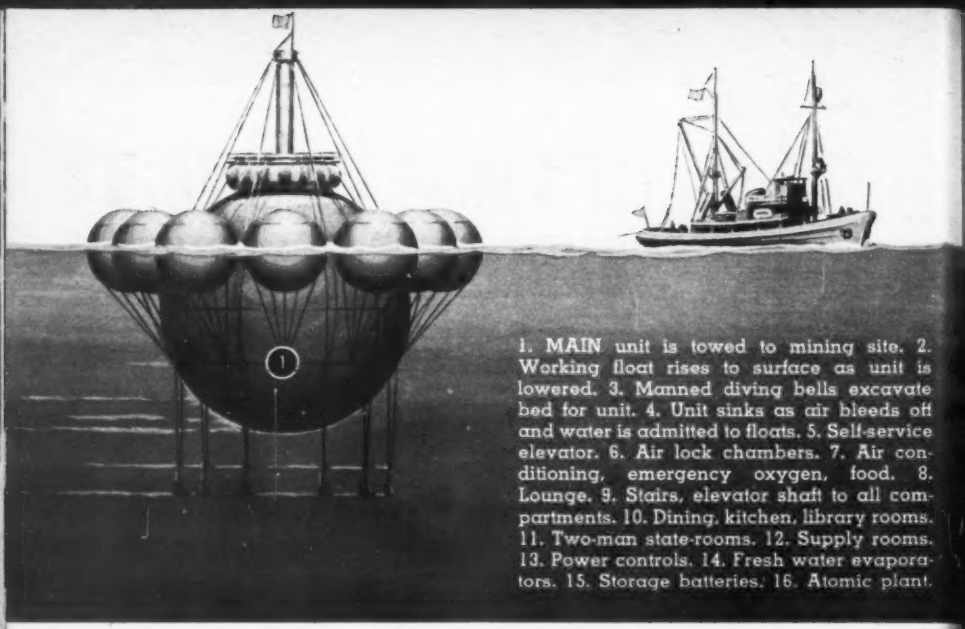
NOW is the time to mine the wealth that lies beneath the sea, claim our oceanic experts. Already we farm shallow sectors of the sea for edible vegetation, pump oil from offshore wells and mine beneath coastal waters for coal and minerals. Since two-thirds of the globe is covered with water, scientists believe that two-thirds of the world's natural resources are still untapped.

The problems of constructing underwater vehicles have already been solved. In January of this year the U. S. Navy bathyscaph *Trieste* descended almost seven miles in the Pacific Ocean with two men aboard. Another useful sub-surface craft is the newly developed RUM (Remote Underwater Manipulator), a sea-bottom crawler with a 15-foot arm capable of doing mechanical work at depths up to 2,000 feet.

The illustrations in this article depict an underwater copper mining station and MI's proposed plan for building it. Ore bearing areas are first located by cruising bathyscaphs with magnetic metal detectors. The bathyscaph is propelled by the Zwicky chemical jet system which admits sea water through an intake in the bow, adds a spontaneously reacting chemical that expands the water into a burst of high pressure

DIAGRAM of underwater mining operation: 1. Base and living quarters. 2. Airshaft to surface is buoyed at intervals by subsurface floats and kept rigid by rigging cables. Tube contains self-service elevator. 3. Surface end of shaft has accommodations for boats, helicopter. 4. Subways leading to mine shafts. 5. Mine shafts. Ore collecting chambers are above sea floor. 6. Bathyscaph powered by chemical jet engine carries ore in perforated cargo hold in its belly. Ground-up ore is mixed with sea water and "slurry" is pumped up through hose into hold. Bathyscaph takes ore cargo to shore base. 7. Bathyscaph-type elevator is another method of getting ore to surface ship. It travels up and down shaft of anchored cables. 8. Remote-controlled crawler attaches and detaches hoses with arms. 9. Legs of underwater oil well. 10. Reynolds Aluminum Co.'s design for deep-diving exploration submarine. 11. Drill of Project MOHO being lowered for drilling into center of earth.

FRANK TINSLEY '61



1. MAIN unit is towed to mining site. 2. Working float rises to surface as unit is lowered. 3. Manned diving bells excavate bed for unit. 4. Unit sinks as air bleeds off and water is admitted to floats. 5. Self-service elevator. 6. Air lock chambers. 7. Air conditioning, emergency oxygen, food. 8. Lounge. 9. Stairs, elevator shaft to all compartments. 10. Dining, kitchen, library rooms. 11. Two-man state-rooms. 12. Supply rooms. 13. Power controls. 14. Fresh water evaporators. 15. Storage batteries. 16. Atomic plant.

hydrogen-steam, and vents the blast rearward by jet nozzle. Dirigible type rudder and flippers, powerful lights and a horizontal TV periscope assist in subsurface navigation.

Once located by the bathyscaph, the undersea ore site is prospected in detail by RUM-type crawlers. Shaft locations are pinpointed and a central site excavated for the headquarters/living unit. Manned, mechanized diving-bells do the excavating. Carrying three man crews, these pressure-resistant chambers are fitted with tool manipulating arms capable of drilling, blasting, earth moving, etc.

These labor saving diving-bells are suspended from special bathyscaph balloons, anchored well below the surface. Drawing in air from ducts to the surface, these submarine service stations compress it, generate electricity and feed all necessary power and facilities to the working bells below. The latter can operate at cable's end or can be lowered to the seabed. Here, they rest on ball-footed, self-leveling, tripod legs. An air-lock, built into the top of each bell, not only serves as an access hatch on the surface, but permits entrance and egress to divers at various depths.

While the mine site is in preparation, the headquarters/living unit is built in a drydock ashore. Globular in shape, 96 feet in diameter and with insulated walls calculated to sustain pressure at the selected depth, this undersea station contains an atomic power plant, supply holds and living accommodations.

With the mine site prepared and the headquarters unit completed, the big watertight globe is fitted with a girdle of spherical floats. These, combined with considerable displacement of the unit itself, are ample for surface flotation.

With the central headquarters unit installed, smaller units are placed over mine shaft locations and connecting tunnels lowered into place. Beneath the rocky bottom, shafts can then be sunk and lateral drifts bored in conventional fashion. In operation, the ore is brought to the shafthead, ground to soluble size and blown into a mixing chamber atop the shaft unit. Water is then admitted and the resulting slurry is pumped into cargo bathyscaphs for transport to shore plants.

With man's metallic supplies dwindling on land, cost will not be the governing factor. What is important is the opening of vast new underwater reserves of food chemicals and metals for the world's growing population. •

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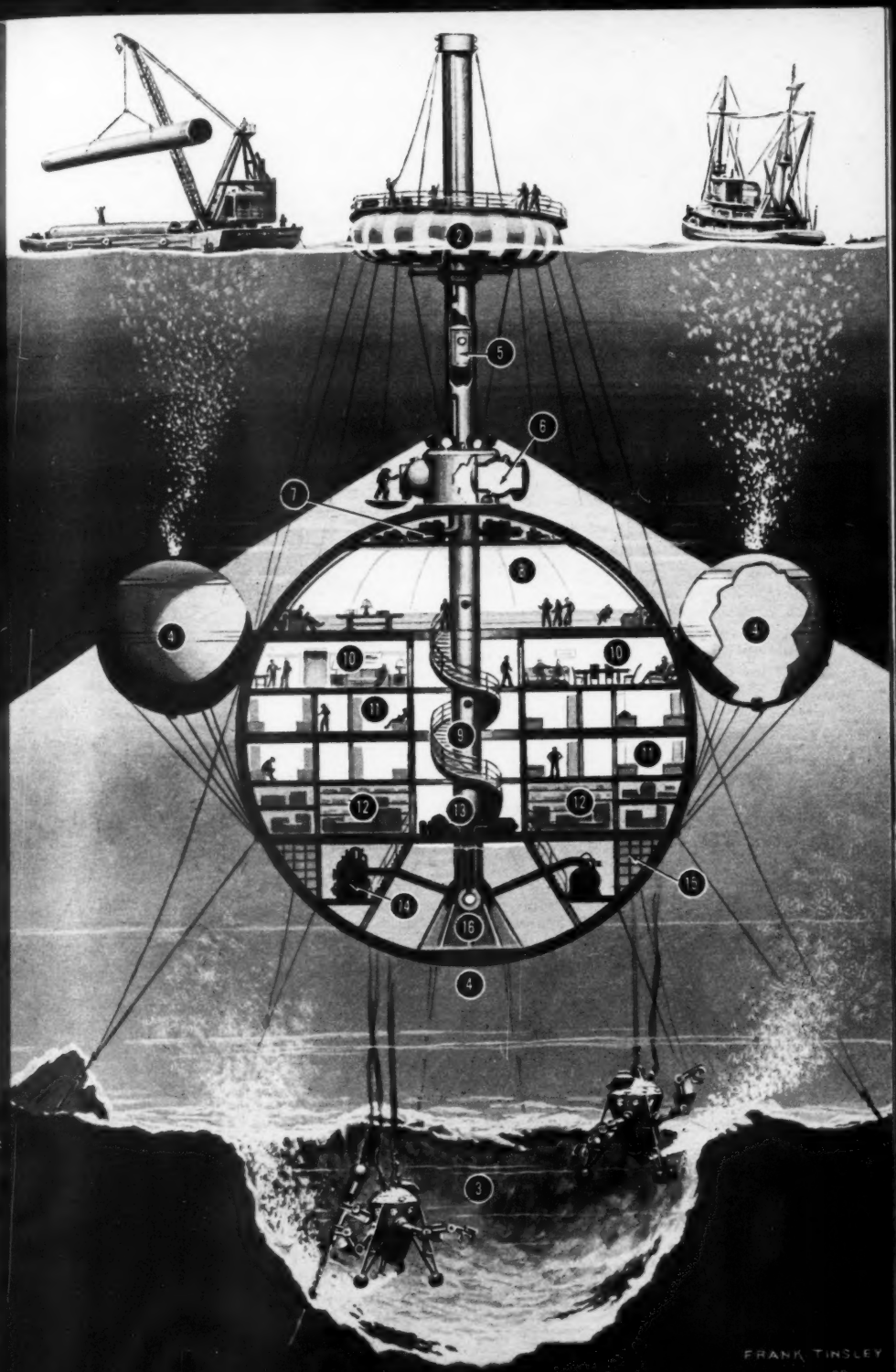
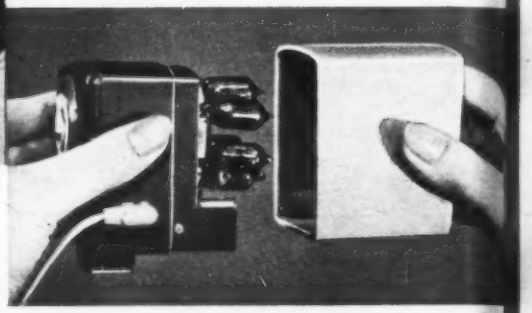


SIX-SHOOTER FLASH GUN

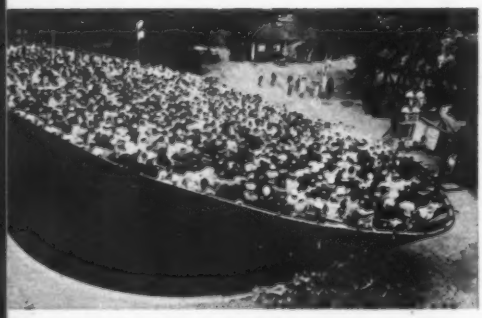
A NEW Japanese flash gun enables photographers to shoot up to six flash pictures in succession without changing flash bulbs. It uses GE's new small, all-glass flashes—AG-1 or AG-1B—set in a dial that is linked to a knob outside which must be turned manually after each flash. The unit can be clipped onto any precision camera. Maker is Nichinan Sangyo Co., Tokyo. •



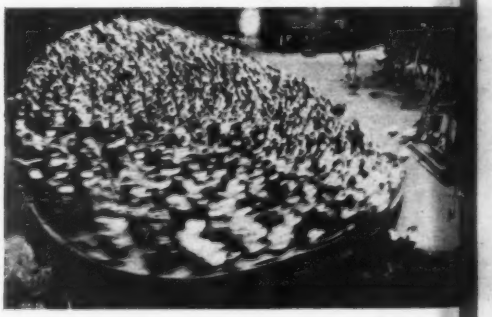
HOLD IT! Tokyo maiden uses new unit, which clips onto any precision camera.

BULBS fit into dial linked to outside knob. New GE all-glass bulbs are used.

REVOLVING AUDIENCE



BOWL of Finnish drama lovers watch open-air play from revolving stand at Tampere.

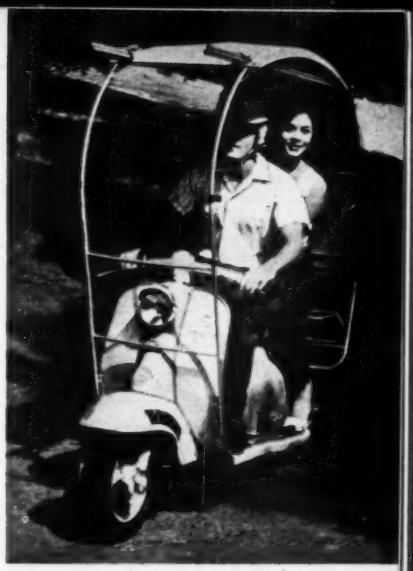


WHEE! Even if the play is dull it's fun to have your attention turned to new scene.

REVOLVING stages are old but revolving audiences are new—except for the kind that turns around once and marches out. In Tampere, Finland, outdoor shows are given to giddy audiences on a fun-ride sort of auditorium that turns to face each new scene. This could be confusing to a kiddy who has crept urgently out to the restroom during a scene. It could also make it possible for producers to revenge themselves on indifferent playgoers by twirling them round and round and thereby making them *really* sick. •

MOTOR SCOOTER-TENT

SCOOTERISM gets a big boost from Viceroy Sales, 59 Chalk Farm Road, London NW1, England, with this scooter canopy that can be extended to make a tent. Extra rods are carried overhead on the canopy frame and extra coverings are packed behind the pillion. Not shown here but a readily available extra is a clear plastic windshield that fits into the forward frame. The rolling rig, with the tent all packed aboard, gives the scooter a sort of sidesaddle prairie schooner look. The entire happy-go-lucky design costs about $60. •

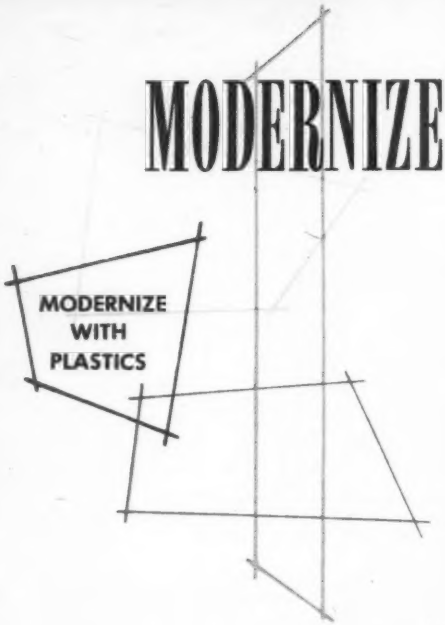


COVERED SCOOTER tools merrily along on English lane. Note how extending rods are carried overhead.

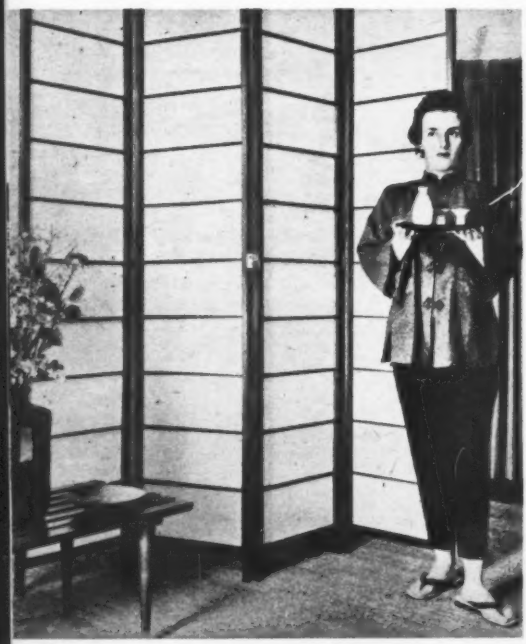
EASY WORK of setting up the tent frame can quickly be taught to the little woman.

SUNSHADE for a quiet siesta. Below, the canvas sidewalls snap neatly on the frame.

MODERNIZE YOUR HOME WITH T



ALSYNITE GARDLITE translucent Fiberglas paneling has pattern of ¾-inch expanded steel embedded, is made by Reichold Chemicals, Inc., 4654 De Soto St., San Diego 9.



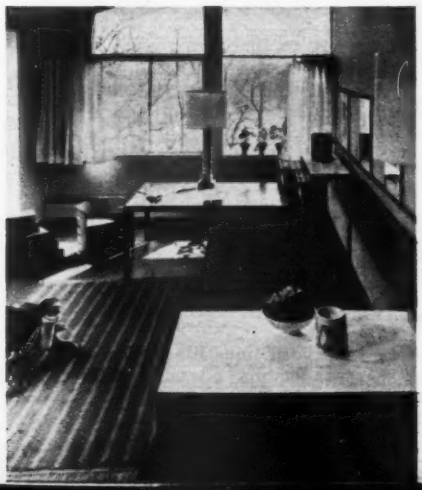
SHOJI SCREEN made of redwood and Fiberglas is easily built. Simpson Redwood Co., 2031 Washington Bldg., Seattle 1, Wash., or a local dealer will supply free plans.

ENCLOSED PATIO extends living area of house. It's 12x21 ft., cost about $500 to build, makes extensive use of clear paneling made by Owens-Corning Fiberglas Corp.

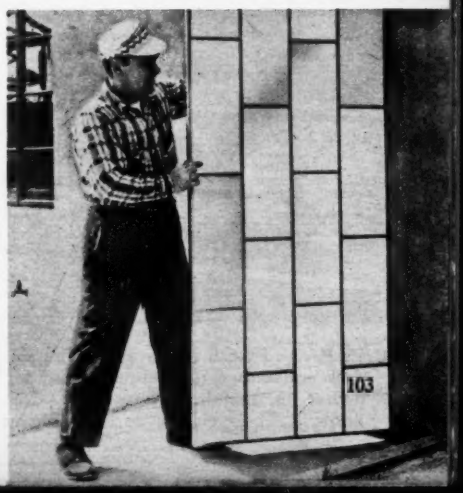
THESE WONDERFUL NEW PLASTICS

THIS PATIO was enclosed with colored, translucent Alsynite paneling made by Reichold Chemicals, Inc. Sliding doors open to garden, retaining the feeling of outdoor living.

BOY'S ROOM is easy to adapt as he progresses from playing with blocks to college studies. Walnut-grained Formica tops table and white Formica is used on chests.



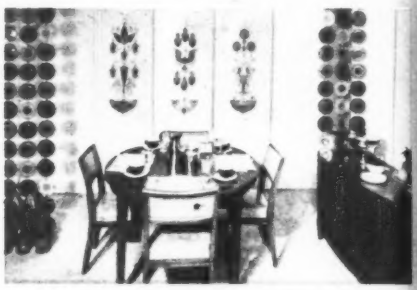
WALL UNITS for inside or out contain Fiberglas panels in many color schemes, are made by Seaporcel Metals, 28-20 Borden Ave., L.I.C., N.Y.



KITCHEN WALLS and counter surfaces are covered with Nevermar, a plastic laminate in patterns or wood grains which is made by National Plastic Products, Odenton, Md.

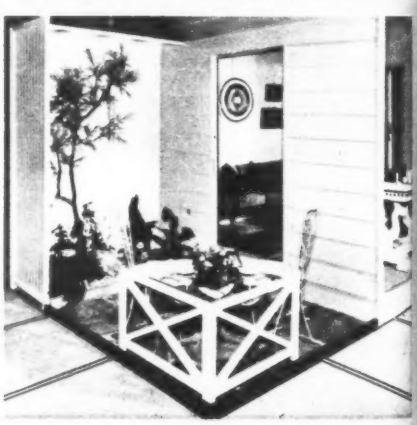
WOOD PANELING in random widths is simulated with Textolite, a plastic laminate made in a number of wood grains by General Electric Co. in Coshocton, Ohio plant.

GUTTER GUARD forms a tunnel to prevent leaf, twig or snow clogging. It's made of Du Pont's polyethylene plastic by Jo-Li-Et Gutter Gard Corp. of Glenbrook, Conn.



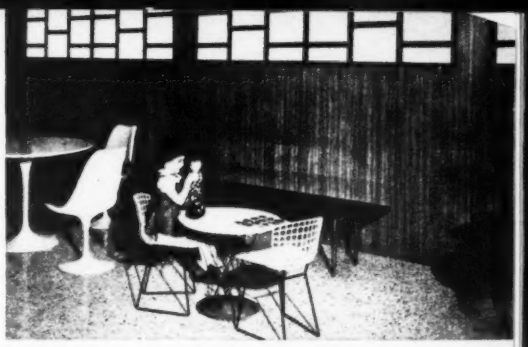
DIMENSIONAL effect is created on flat wall with Concave, a mural-printed vinyl covering which is washable. This product comes from Denst & Soderland in Chicago.

GARAGE DOOR made of translucent Fiberglas panels and aluminum is easy for home owner to install. Frantz Mfg. Co., Sterling, Ill., has single and double widths.

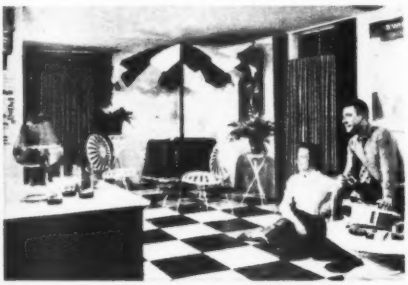


PLASTICS from Allied Chemical Corp. are used for the paneling, outdoor furniture, floor tiles and dishes in this patio setting designed to open from a family room.

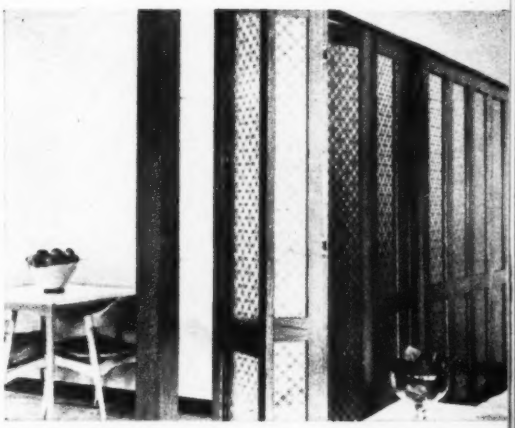
FIBERGLAS drapes and curtains are easy to wash, fireproof, made in many weights and patterns. For information, write to Owens-Corning, 717 Fifth Ave., N.Y.C. 22.



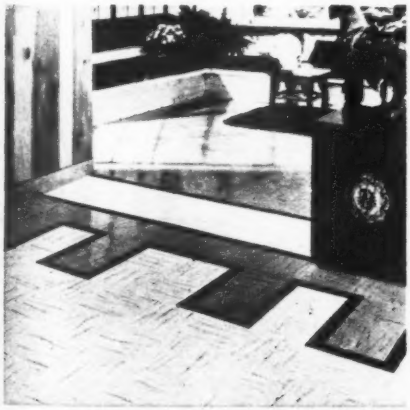
GAME ROOM is paneled with wood-grained Micarta made by Westinghouse in Hampton, S. C. Practically maintenance-free panels come in 11 patterns and four wood grains.



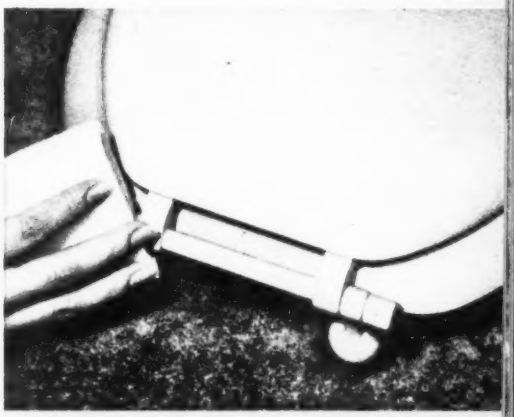
BASEMENT family room has vinyl-asbestos Excelon tile flooring and vinyl coverings on countertops for easy maintenance, both made by Armstrong Cork Co., Lancaster, Pa.



LAMINATED glass by Dearborn Glass, Bedford Park, Ill., has plastic center film made by Monsanto Chemical Co. In patterns, it is made clear, translucent or opaque.



ORIENTAL DECOR of this room is accented by the geometric pattern of Hako tile floor covering. These tiles are made by the Mastic Tile Div. of The Rubberoid Co.

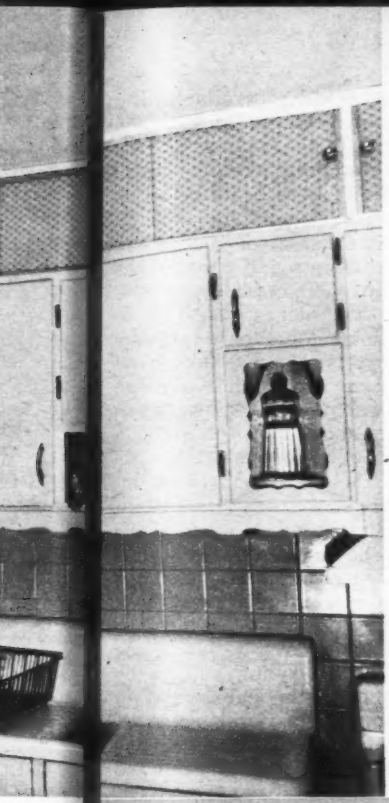


HINGE for toilet seat is made of solid plastic called Marlex, needs only a wipe to stay clean, can't corrode. In colors, it's made by C. F. Church, Holyoke, Mass.

NEW CABINETS installed atop existing ones and flush to the ceiling will expand kitchen cabinet storage facilities by at least 30%.

CUT FRAMES to size, fit them in place, then drill pilot holes for the wood screws.

ALUMINUM TRACK for the sliding doors is fastened to the frames of the cabinets.

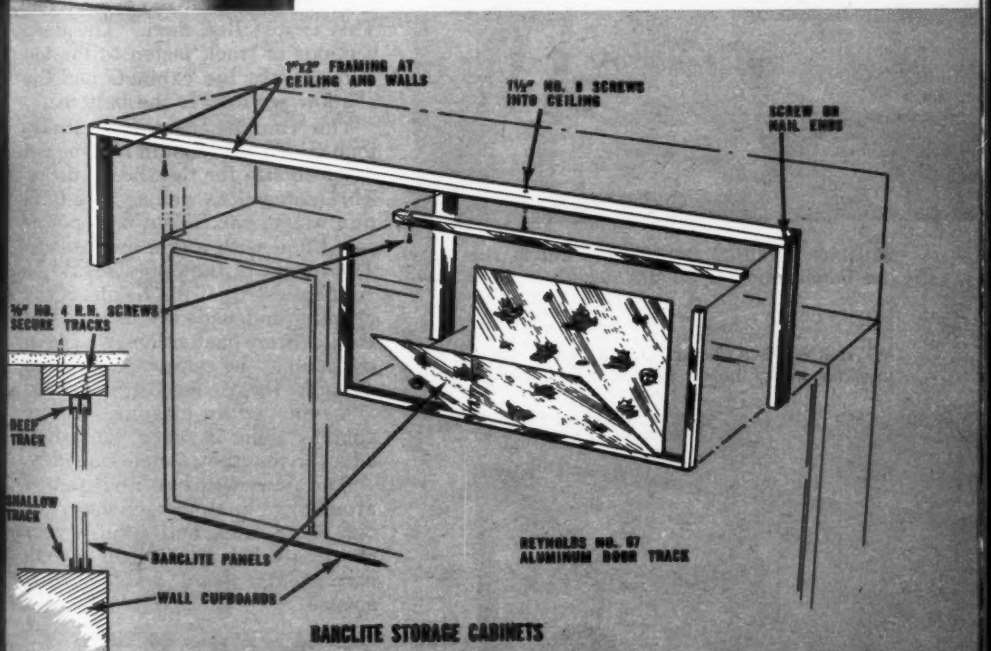


KITCHEN STORAGE CABINETS

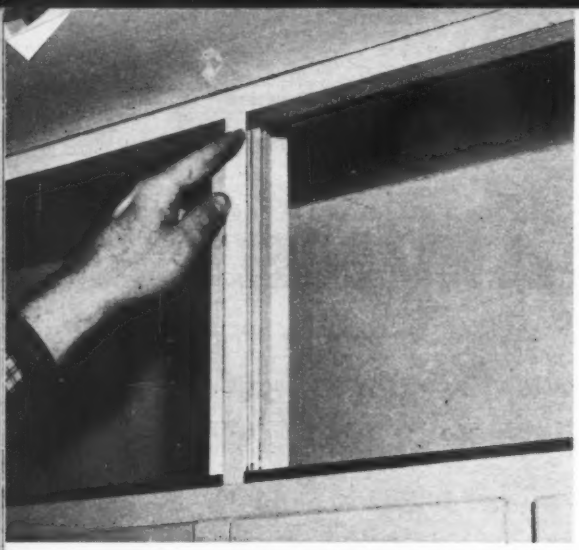
Need more storage area in your kitchen? If the answer is "yes" this article is written for you!

By R. J. Capotosto

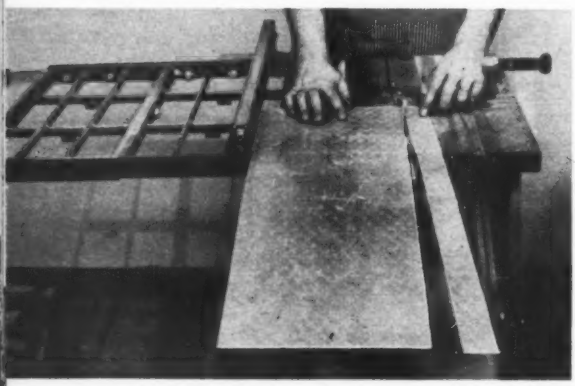
IS that open space above your kitchen cabinets going to waste? This area is a natural dust trap that has every possibility of becoming a junk-collection center for all those rarely used samovars, trivets and knickknacks that accumulate in many kitchens. You can avoid this unhappy eventuality very simply and effectively by enclosing this area behind sliding doors made of decorative Barclite glass fiber panels. This ⅛-inch-thick material is



BARCLITE STORAGE CABINETS

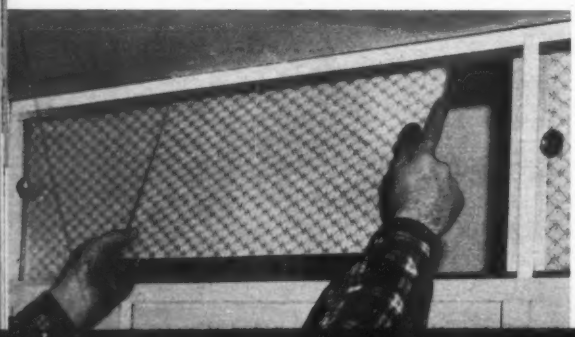


DETAIL shows aluminum track flush with cabinet exterior. Frames were painted before installation.



SLIDING CABINET DOORS are cut to size from the Barclite panels on a fine-tooth circular saw.

WITH KNOBS ATTACHED, the panels are slipped in place along the grooves of the aluminum track.



translucent and is available in a variety of patterns including a number of foliage laminations. The pattern used here is called Thread Of Gold and is as beautiful as its name implies.

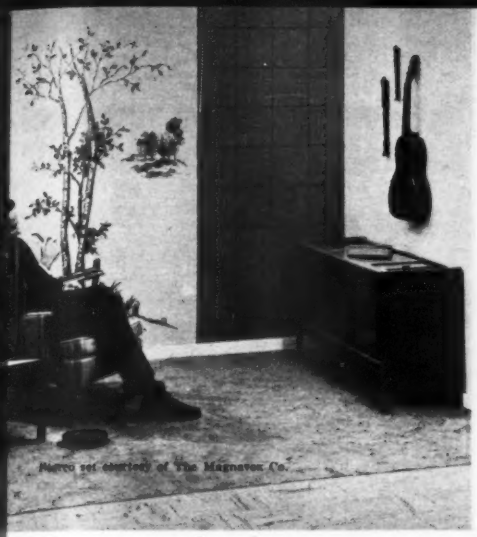
An examination of the accompanying diagram and photographs points up the simplicity of this project. The fact is you ought to be able to assemble these cabinets-over-cabinets in a weekend of leisurely carpentry, and your own finished cabinets may provide you with even more than the extra 15 cubic feet of enclosed storage space that was achieved with these installations.

Your first step is to measure the area to be enclosed. Following these measurements, cut the frames to size and then paint them. When the paint has dried, use flathead wood screws to fasten the frames to the ceiling and to the tops of the existing cabinets as indicated in the diagram.

The aluminum track for the sliding doors is sold in pairs and is available at all hardware stores. This is installed next. The deep sections of track fasten to the top and sides of the cabinets and the shallow sections to the bottom.

The Barclite comes in 26x29-inch sheets and should now be cut down to size for the sliding doors. This material, as well as the aluminum track, can be cut on a power saw fitted with a fine-tooth blade. The height of the doors should be ⅜ inch less than the height of the opening and wide enough so that they overlap each other by at least one inch at the center. Cut in this manner the doors can be lifted and removed for cleaning. Before slipping them in place, sand their edges so that they'll slide smoothly.

And now, with the final step of attaching a knob to each door, you can stand back and admire your creation—and also collect a well-earned kiss from your grateful spouse. •



UNWANTED SOUND reflection is stopped by soft wall.

TILES are bonded to wall with special adhesive or with a wall paper paste.

MODERNIZE WITH PLASTICS

Plastic Foam Wall Covering

A NEW foam plastic wall called Curon eliminates annoying noise reverberation inside a room, cuts down sound transmission from the outside and also acts as an insulator. This material is made in 24 colors and is available in tiles (10x10, 10x20 and 20x20 inches) and in rolls (2x30 and 4x30-foot lengths). Curon conforms to any surface and is easily applied as illustrated. •

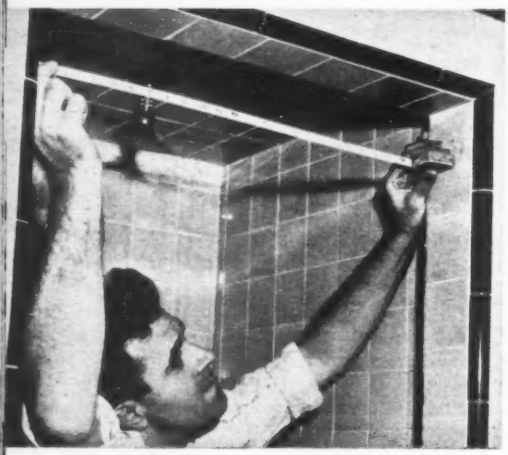
SQUARES are marked off on wall to assure accurate tile alignment.

CUTTING may be necessary to fit corner tiles, is easily done with a kitchen knife or a paper cutter.

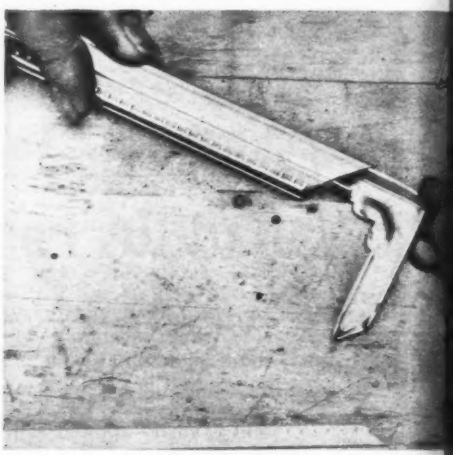
SHOWER DOOR AND MATCHING

MODERNIZE WITH PLASTICS

AN attractive door for your shower enclosure will add a modern touch to your bathroom. The door illustrated is made of a panel of Acrylite in the Vine pattern, a durable acrylic plastic material. It features natural foliage in delicate hues permanently embedded in plastic. Manufactured by Wasco Products of Cambridge, Mass., the panels are available in a wide selection of patterns from gold mesh to actual

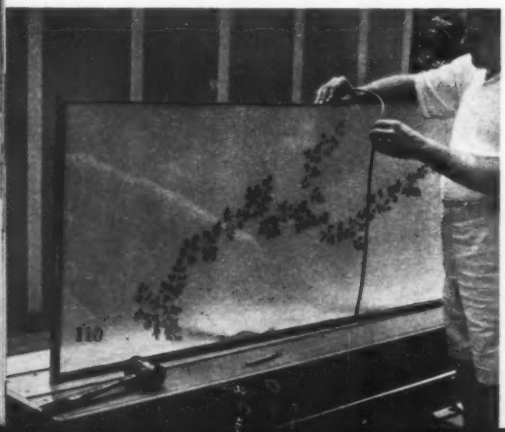


MEASURE the doorway carefully. Subtract allowances described in accompanying text.



THE CORNER locks are pushed into the framing members and staked with a punch.

GLAZING compound is removed from aluminum storm sash and fitted to the panel.

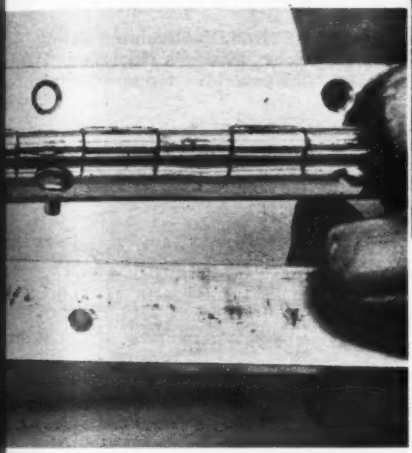


FRAMING member is driven home with a rubber mallet. The compound is waterproof.

CABINET

butterflies between the plastic.

The original plastic shower curtains needed periodic replacement (the small boy hazard!) so we decided upon a door. But the prospects of a large sheet of plate glass being swung about by several children in the house seemed too



THE PIANO hinge is riveted to an aluminum bar which is cemented to wall.

EQUAL PARTS of hardener and resin are thoroughly mixed and applied to bar.

dangerous. Decorative plastic was the answer. The project turned out so well that the "whip" in the house immediately requested a much needed towel and cosmetics cabinet as a running mate!

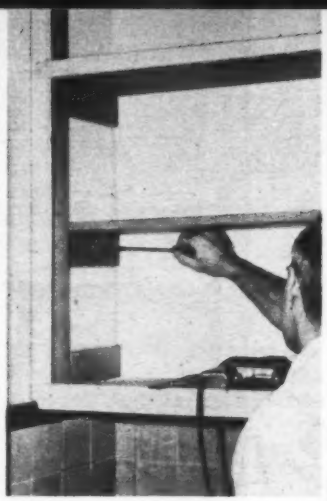
Easy-to-fabricate Reynolds Do-It-Yourself aluminum was used for the framing. Formica was used for facing and lining the cabinet. When the project is finished, future maintenance is—nil.

Start by measuring the width of your shower doorway, subtract thickness of the closed hinge, $\frac{1}{16}$-inch for the door stop and ⅛-inch for clearance. This will give you the door frame width.

Mark off dimensions on the ⅛-inch Acrylite and cut it to size on the circular saw. Metal cutting blades work best but a "wood" blade can also be used. Feed the wood slowly. Smooth raw edges on the sander.

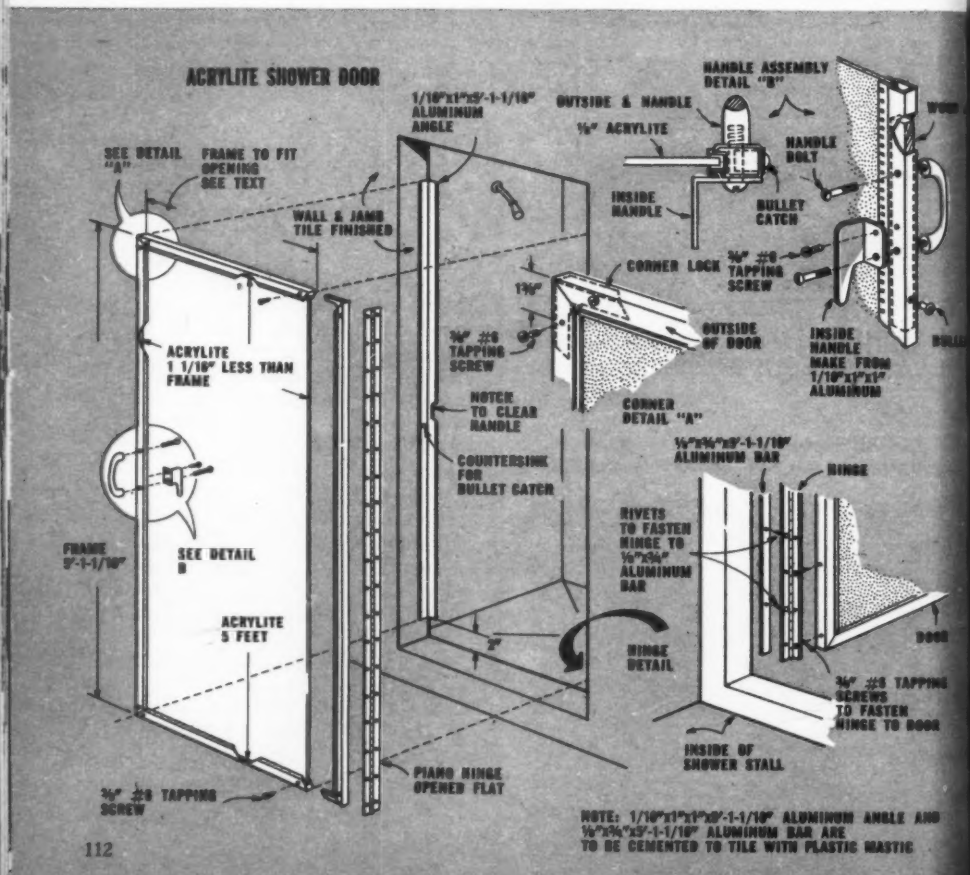
Place corner locks into both mitered ends of the side frame members and stake these locks in place by piercing the metal (from the inside) with a nail or punch. Place the plastic glazing channel over the panel and insert top and bottom

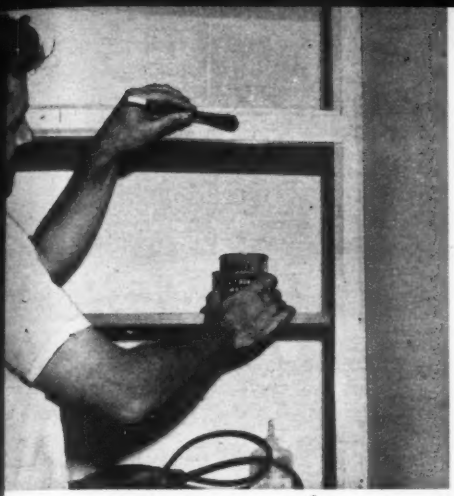
WOOD STRIPS are used as wedges for pressure while the epoxy is drying.



SCREWING the 1x2-inch cleats to the wall. These cleats support the shelves in cabinet.

REYNOLDS aluminum sliding door track is installed to the two sides, top and bottom.

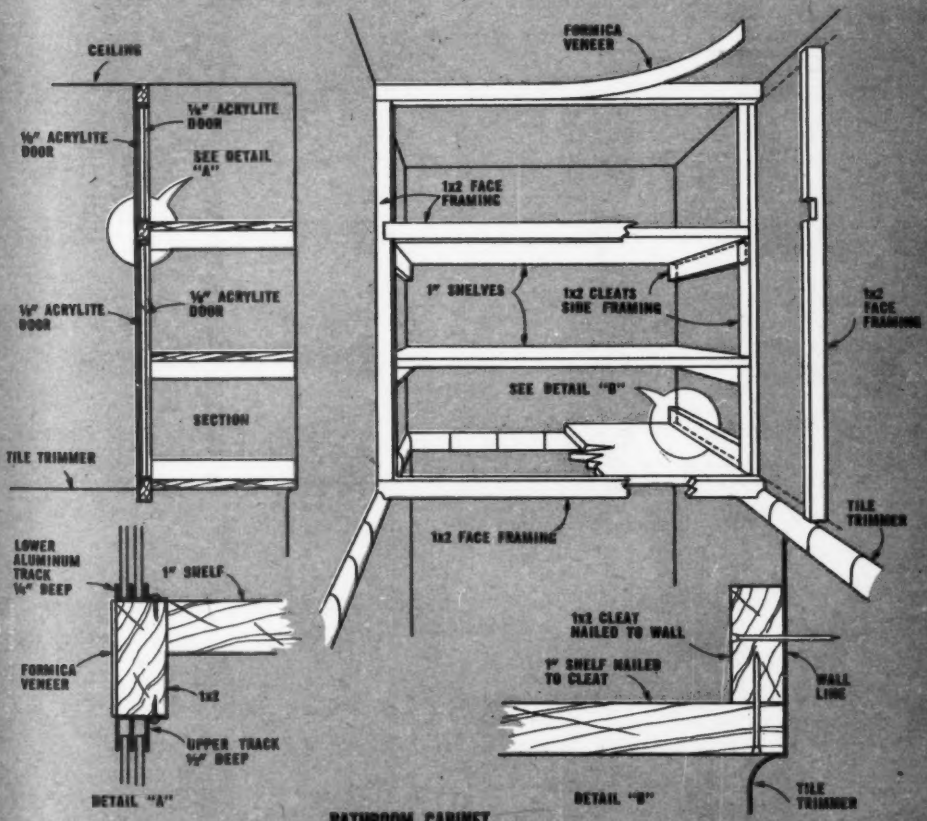




FORMICA contact cement is applied to all exposed surfaces of the cabinet as well as to the backs of Formica panels.

frame members. The side frames with corner locks in place are added and driven home with a soft mallet. The holes for 6x⅜-inch self-tapping screws are drilled with a No. 37 drill to secure the frames to the locks. With the addition of handles and a bullet catch we now proceed to the doorway.

To attach a piano hinge to the ceramic tile doorway would have been a difficult task but for the unique holding power of an adhesive called Plastic Mastic. The material comes in two parts, Plastic Mastic Base and Plastic Mastic Hardener. Equal parts mixed together just before use will hold practically anything to everything. The piano hinge was riveted to a strip of ¾x⅛x5-inch aluminum stock. Adhesive was applied to the strip and the strip was then placed in the doorway. [*Continued on page* 139]



BATHROOM CABINET

MODERNIZE WITH PLASTICS

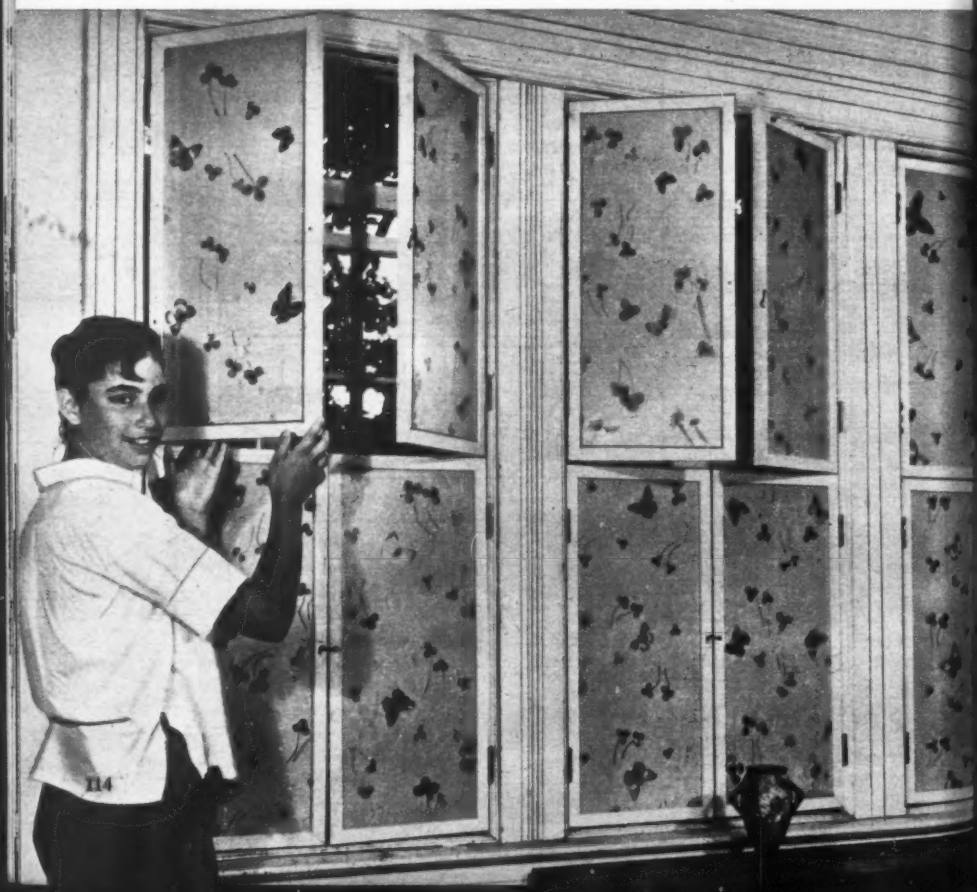
Butterfly Shutters

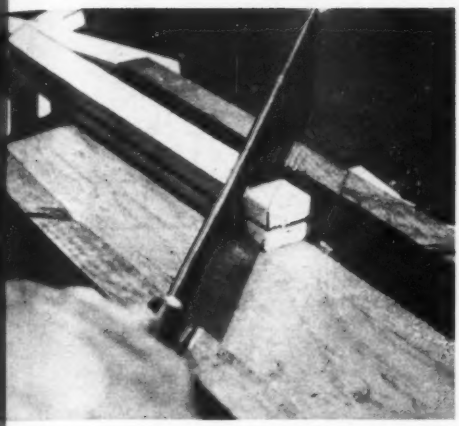
Add a touch of elegance to your home with shutters made of decorative plastic

DECORATIVE plastic sheeting makes an interesting window treatment that offers the convenience of a Venetian blind plus the beauty of decorative natural grasses, leaves and butterflies.

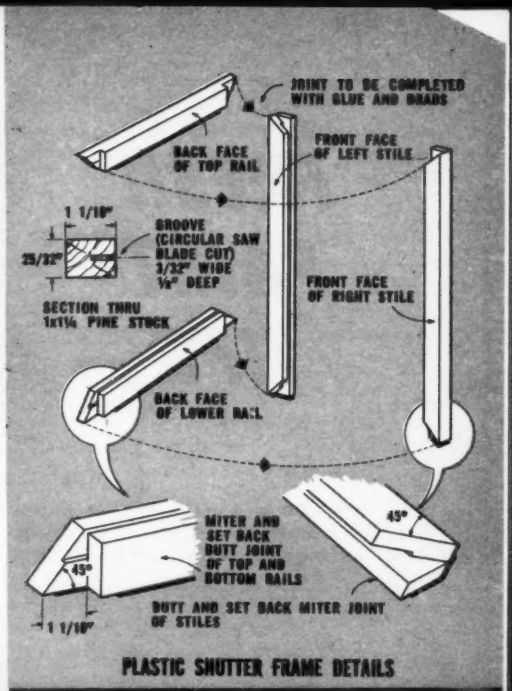
The shutters are installed to swing at both sides of the window, with an option of dividing up the window area into two tiers to offer better light control. Thus, the upper pair of shutters may be closed to strong sunlight and the lower ones kept open for light and sight. On the other hand, the lower shutters may be closed for privacy while the

REAL LEAVES and butterflies are embedded between sheets of plastic: the two tiers of shutters offer widest possible control of light.

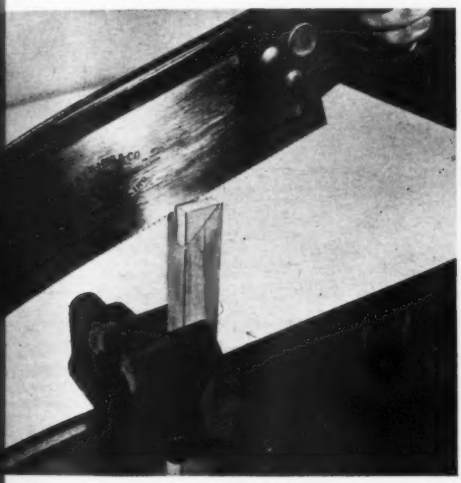




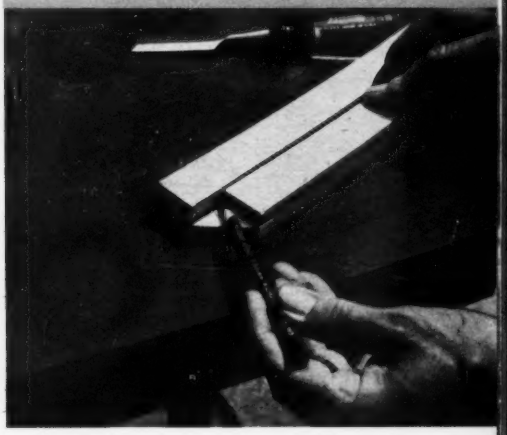
STRIPS are cut to exact full length. Two opposite strips are mitered at both ends.



PLASTIC SHUTTER FRAME DETAILS



THE SQUARED ends of the other two strips are mitered to only half their thickness.



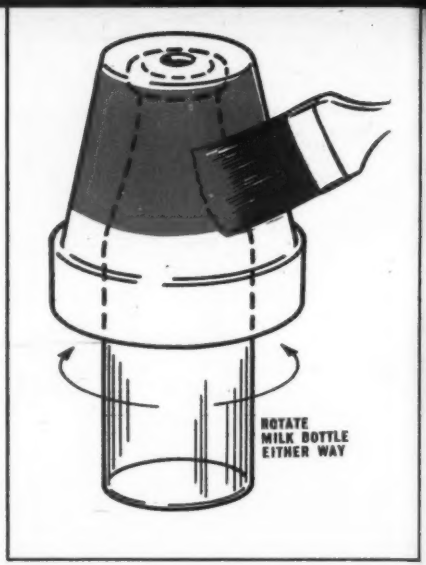
THE MITERED strips are marked off for squaring to match other half of the joint.

upper pair remains open for light.

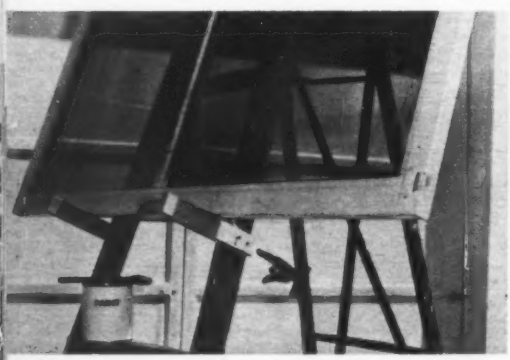
The natural inserts—butterflies, leaves and flowers, etc.—are laminated between the clear plastic, which is translucent. However, if you want full light control, so that a room is utterly dark in the early mornings, paint the back of the plastic. This means that a different color shows on the back when the shutters are open. If you prefer to have the same plastic visible on both sides, just use a double sheet installation, placing opaque paper between each layer of plastic.

The shutters should be made to fit your particular windows. Simple wood frames are grooved along the inside edge for the [*Continued on page* 135]

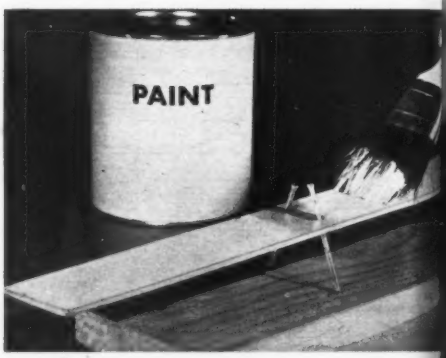
FRESH PAINT TIPS



PAINTING a flower pot is a cinch if you mount it upside-down over a milk bottle. Keep turning the bottle; leave till dry.



WOOD STRIPS on ladder make support for painting screws. Strips pivot on screws; are held in place with removable nails.



TWO FINISHING NAILS driven into a scrap board, at an angle as shown, make a handy support for painting Venetian blind slats.

Solventique is a paint remover in powder form to be mixed with water. A 1½-pound box, to cover 50 square feet, sells for $2. Antique Corner, South Bend 24, Ind. . . . A 48-page booklet, Home Painting and Color Guide is available for 10 cents from the Du Pont Co., Dept. AP 64, Wilmington 98, Del. . . . The guide illustrates 54 rooms and 35 exteriors in full color and shows how and why they were painted. . . . Want "wallpaper" made of vinyl? The Fabritate Co., of 515 Madison Ave., N.Y.C. makes it out of Monsanto's vinyl plastic. . . . A chart of 24 color chips is available for the asking from the Luminal Co., 3617 S. May St., Chicago 9, Ill. It illustrates their new line of exterior latex paints.

ALWAYS PAINT the inside of a window rabbet before applying putty. Score the wood with a tracing wheel to make putty adhere.

the new 1961 EVINRUDES are out *in front!*

New! And looks it! If you've been waiting for your dream motor, wait no more. Evinrude's all new Starflite III is here. What does it offer? The might of 75 hp! The smoothness of a V-4 engine! The speed of Jetstream Drive! The quiet of sound-sealed, cushioned power!

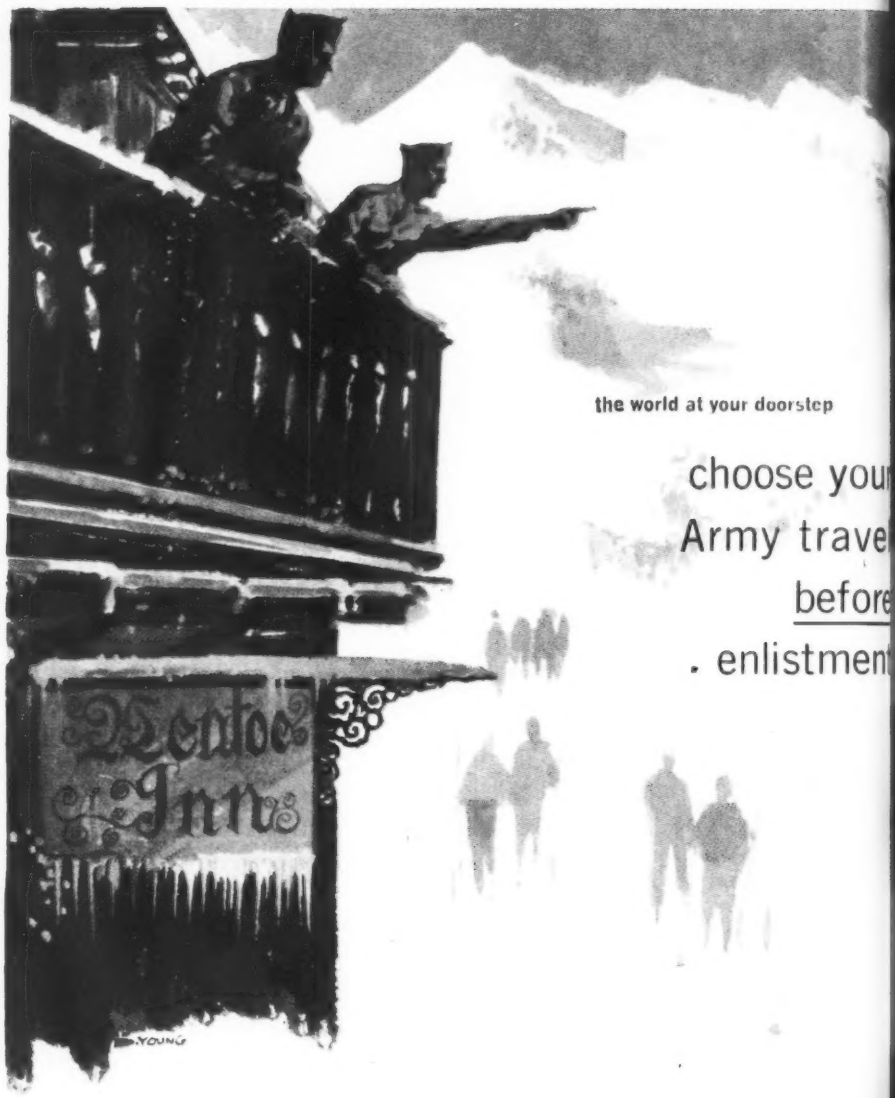
New fixed-jet carburetion is combined, for the first time, with thermostat-controlled engine temperature for the ultimate in efficient, fool-proof performance. A new AC generator, with transistorized regulation, lets you enjoy all the latest electrical accessories with never a worry about battery drain.

For 1961 . . . Evinrude presents two brilliant Starflite models, a new, luxury-performing 40 hp Lark, the "big buy" 40 hp Big Twin, and four other models of efficiency from 3 to 18 hp.

Fall is your best time of all to drive a good boating bargain. See your Evinrude dealer now. Ask for your FREE 24-page 1961 catalog, or write: Evinrude Motors, 4019 N. 27th St., Milwaukee 16, Wis. (*In Canada: Peterborough, Ont.*) *A Division of Outboard Marine Corp.*

EVINRUDE

FIRST IN OUTBOARDS

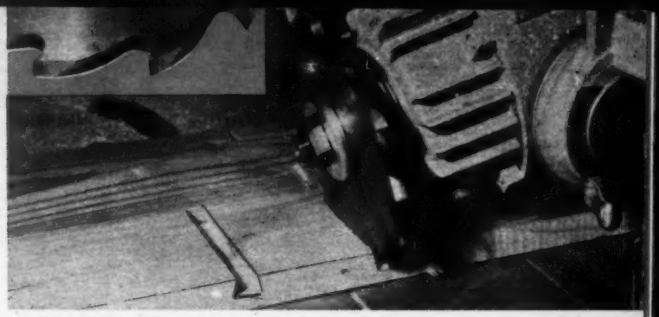


Like skiing? How about the Bavarian Alps? Swimming? Try the beautiful blue Mediterranean. Mountain climbing? Tackle the heights of Mt. Fujiyama in Japan. Today's Army lets you **choose** the oversea area where you'll be stationed—Europe or Far East. On duty and on leave, you'll be able to travel widely while you're there. Ask anyone who's traveled. Nothing beats the exciteme of new and fascinating places. And now the Army pu them at your doorstep. So don't just dream of faraw places you'd like to see. Make your travel arrangemen with your Army recruiter this week. See him—and choo your travel before you enlist!

CHOICE, NOT CHANCE

US ARMY

MI's HARDWARE STORE

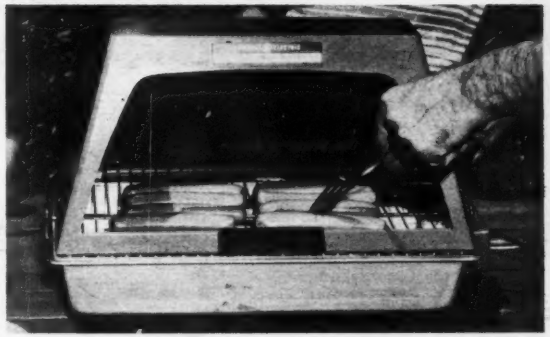


A NEW BLADE, designed to fit all radial-arm and table saws, cuts dovetails with two passes. Price, $19.95.

Hitt Products Co., 21 W. 46 St., New York 36, N. Y.

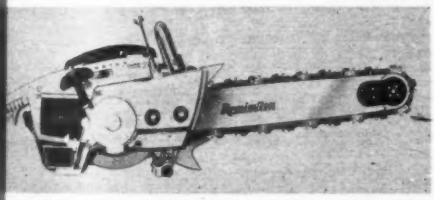
SUNGLASSES flip up or down at a flick of your wrist. Great for spectator sports, driving, golfing and baseball. They sell for $2.98.

Rayex Corp., 130-30 37 Ave., Flushing 54, N. Y.



PORTABLE ELECTRIC GRILL broils, barbecues, toasts; Model B-10 has "Keep Warm" area, windshield hood; $25.

General Electric Co., Inc.

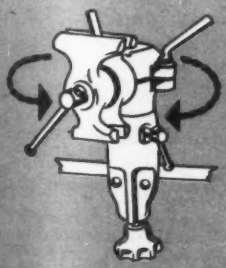


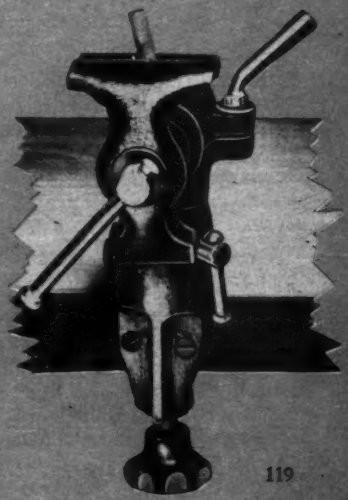
NEW CHAIN SAW features alternate pinion assembly accessory for a quick change-over from a 2-to-1 to a 3.2-to-1 gear ratio.

Remington Arms Co., Inc., Bridgeport, Conn.

BENCH VISE features rotating jaws. Top halves of jaws are flat; the lower ends have a V groove for gripping round work. Jaws are 2½ inches wide; sells for $9.95.

Roland Hardware, P.O. Box 117, Bristol, Pa.





MODERNIZE WITH PLASTICS

TRANSLUCENT FENCE

Fences of any length or color are easily built with corrugated Fiberglas paneling.

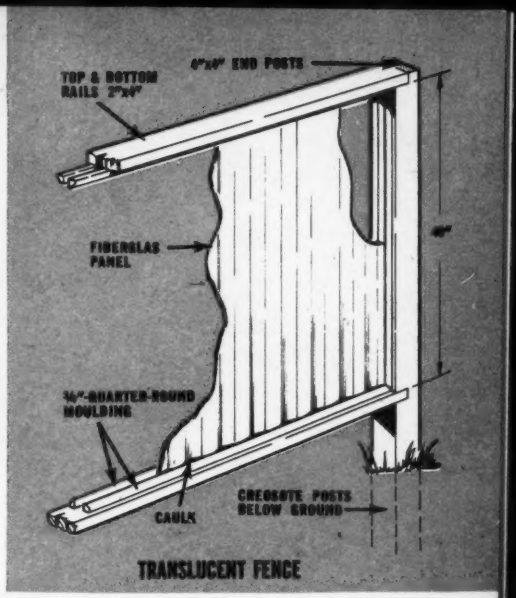
BECAUSE of its wide color range, strength and immunity to the elements, whether in tropical heat or 20-below temperatures, corrugated Fiberglas paneling is excellent for fences, windbreaks and practically all types of outdoor enclosures—and just about the easiest to build is a fence of the type shown on these pages.

Since the panels come in widths of 26, 34 and 40 inches, and lengths of 8, 10 and 12 feet, you can build a low fence to keep out stray animals by running them horizontally or a high one for privacy by running them vertically. For a low fence, no framing is necessary if the posts are spaced about four feet apart; for a high one, framing such as that shown in the drawing is required.

The fence shown was designed to afford a measure of privacy, so it was built in a section four feet high and eight feet long. Because the corrugations in the panels run lengthwise and the preference was to have them running vertically in the fence, this meant cutting eight-foot panels in half. In this case, the cutting was done at the lumber yard where the panels were bought, but it's easily done at home by using a saw with fine teeth and no set.

Erecting the fence is simple once the

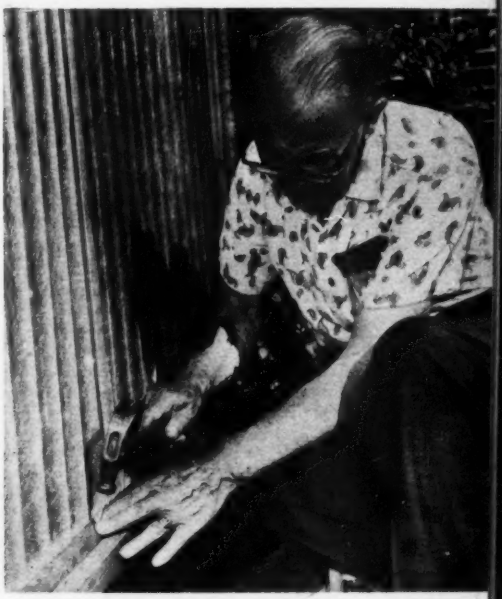
POST HOLE DIGGER serves to make series of holes three feet deep for fence posts.



posts have been set in the ground. The horizontal members are nailed in notches cut in the posts and the panels are retained by quarter-round strips on each side. At the bottom, the space between the corrugations and the quarter-round is filled with calking compound so that rain water will not collect there.

One eight-foot fence section can be completed in a couple of hours and it's a simple matter to add additional sections for a fence of any length. •

POST END is soaked in creosote and set vertically in hole with the aid of level.



QUARTER-ROUND strips hold the Fiberglas panels in place along centerline of frame.

COLORFUL AND DURABLE Counter Corlon can be curved from counter to back-splash without seams. Installed, it quiets the noise of silverware and helps to reduce dish breakage.

PLASTIC COUNTER TOP

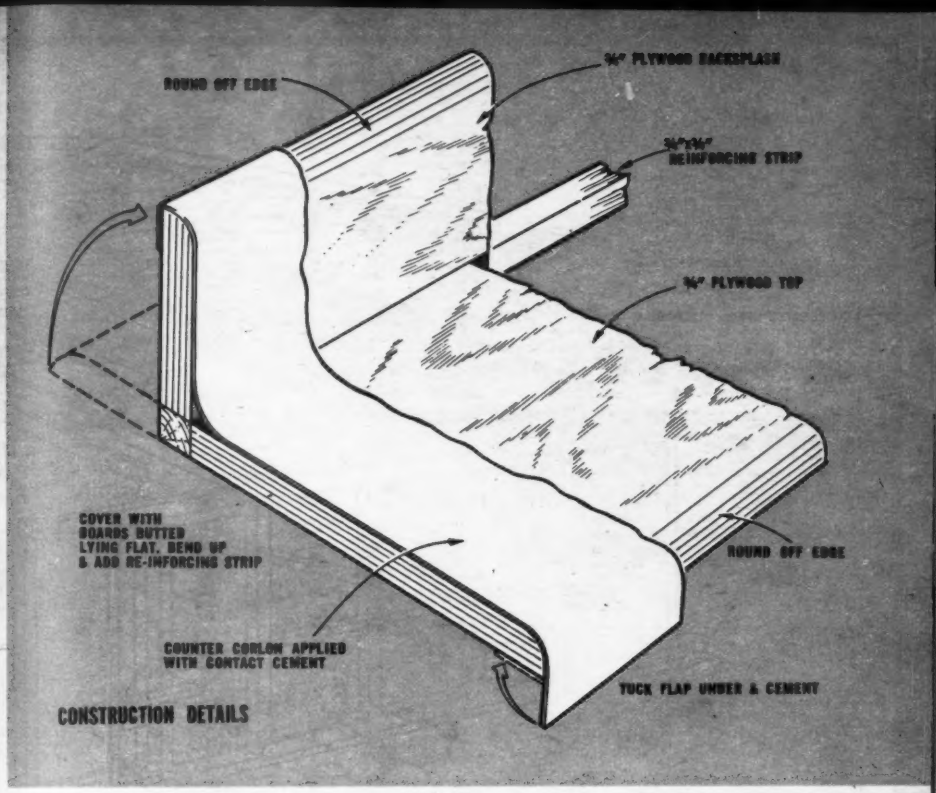
COUNTER Corlon* is a flexible vinyl surfacing material that resists tearing and staining and wipes clean with the swish of a damp cloth. It's made to order for covering such items as this 18x36-inch counter top and four-inch-high back-splash.

The materials required for the job consist of one piece of ¾x18x36-inch plywood and another measuring 4x36

ADHESIVE IS APPLIED to back splash-board, counter plywood and to back of the vinyl.

FIVE MINUTES LATER surfacing material is smoothed onto the butted plywood boards.

*Armstrong Cork Company
Lancaster, Pa.

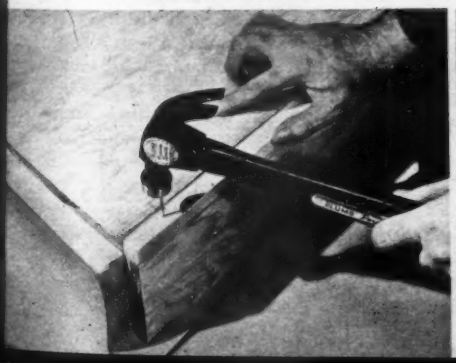


inches; a ¾x¾x36-inch wood reinforcing strip; a sheet of Counter Corlon 28x38 inches; one pint of Armstrong's S-1200 contact bond cement; a brush for applying the adhesive; a linoleum knife; a hammer; and a few 1½-inch finishing nails. Cost for all materials: less than $8.

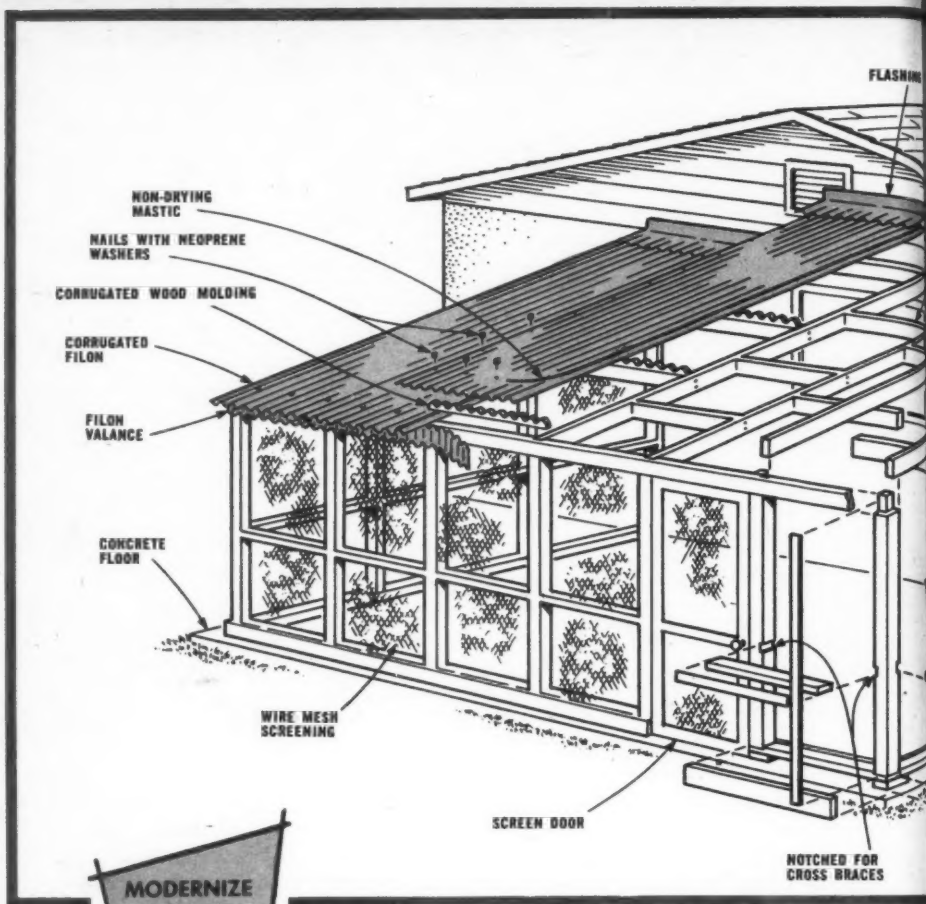
Cut the counter and backboard panels to size, butt them along their square edges, then apply an even coating of contact bond cement to their surfaces and to the underside of the plastic sheeting. Allow the adhesive to become tacky. Then carefully smooth the plastic onto the two boards using the heel of your hand to press out any air bubbles.

Nail the ¾x¾-inch reinforcing strip into the 90° angle formed by bending up the back-splash as shown in the drawing. Trim off all excess material with the linoleum knife. Also cover the exposed sides of the counter with vinyl.

REINFORCING STRIP is nailed into 90° angle formed by the two plywood sections.



TRIM OFF excess Corlon, then cover any visible edges with strips of this material.



MODERNIZE WITH PLASTICS

BACK YARD F

This cool, screened-in patio has a Fi

ANYONE who can handle a hammer and saw can erect a delightful patio in a weekend. That's just how long it took to finish this one, using simple framing, metal screening and translucent Fiberglas panels for the roof.

The corrugated Fiberglas panels, made by Filon Plastics Corp., 2051 E. Maple Ave., El Segundo, Calif., are available in numerous colors which allow different degrees of light and heat transmission. Thus you build your patio according to the climate with the preferred temperature and light control. In a cool and cloudy or naturally shaded area, you might want Jade, which transmits about 74 per cent of the light and 64 per cent of the heat; in a warm and sunny area, you might select Canary, which transmits about 27 per cent of the light and 21 per cent of the heat.

Construction of the patio is completed in simple steps. First the front header posts are erected. The plate can be anchored to the cement floor pad but an easier way is to lay it on wooden blocks and toenail the posts in place,

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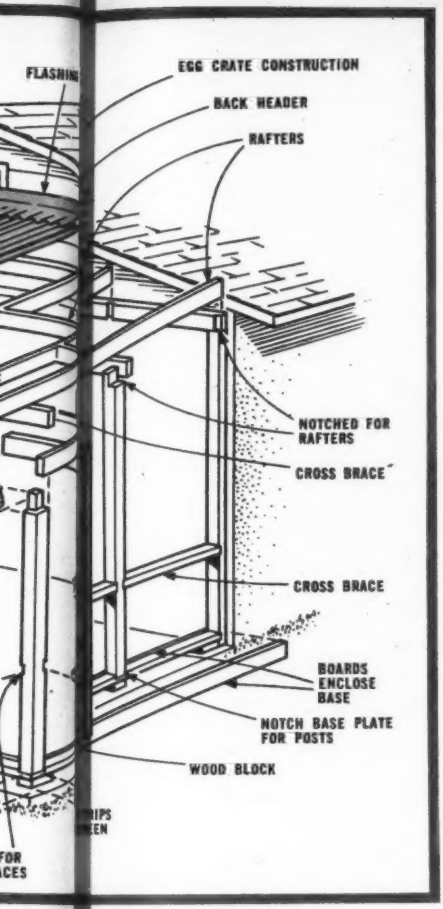
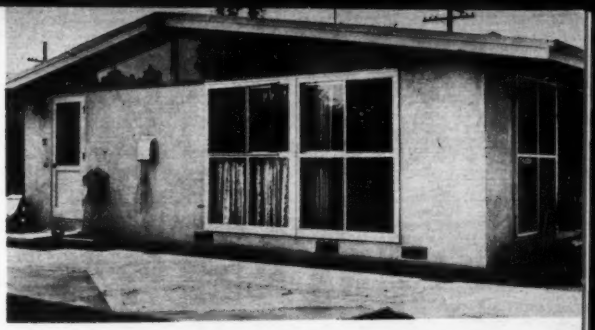
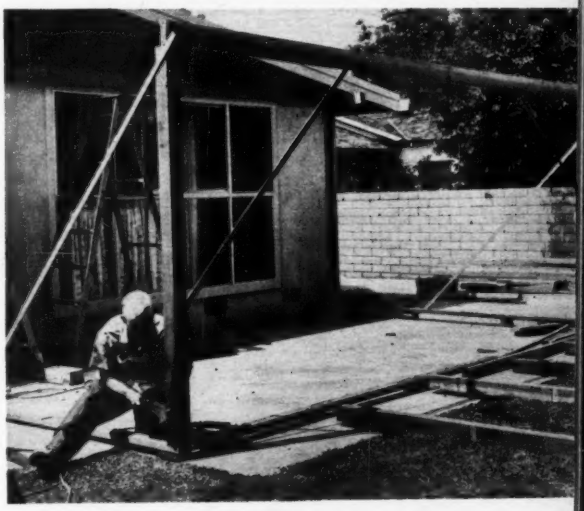


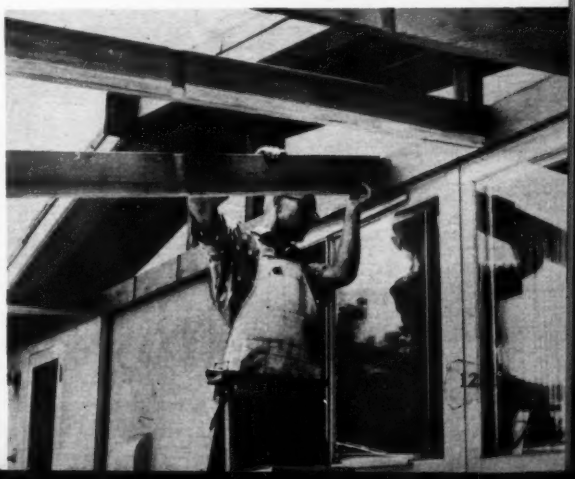


BACK YARD wasn't particularly functional before home owner decided to build a screened-in patio.



POSTS and plate are installed on wooden blocks to eliminate need for drilling the cement floor.

RAFTERS are toenailed in notches cut in front and back headers. Note notches for cross braces.



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has a Fiberglas roof.

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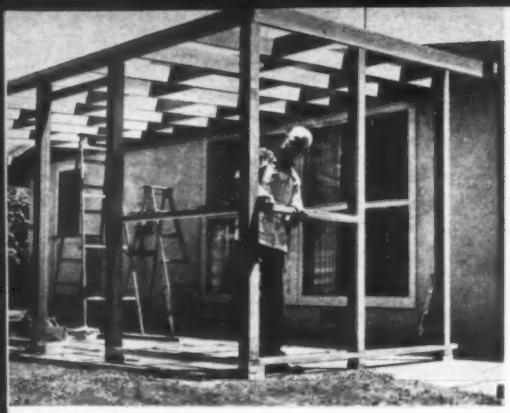
using lath braces to hold them upright until the rest of the structure is tied in.

With the posts fixed, the front header is installed. Use a 4x4 if the span between the posts is less than 10 feet, a 4x6 if the span is 10 to 14 feet and a correspondingly heavier header if the span is greater than 14 feet. Six-inch angle irons can be used to tie the header to the posts or the posts can be notched and the header nailed in as shown



CROSS BRACES form an egg-crate effect above and tie the posts together below.

CORRUGATED FILON roof is fastened down with aluminum nails and neoprene washers.

MASTIC weatherproofing strip is applied between Filon panels where they overlap.

in the drawing on the preceding pages.

The back header goes up next. This is a 2x6 fastened to the house wall 8 to 12 feet above the patio floor. However, it is first notched for the rafters. The ¾-inch-deep notches are spaced so that the rafters will accommodate standard-width Filon panels, allowing for an overlap of one corrugation. When locating the back header, place it high enough to allow at least a one-inch pitch for each foot of distance between the wall and the front header. This distance, incidentally, should be 12 inches less than the length of the Filon panels to allow for an overhang at the front.

The rafters are next. Use 2x4's if the span from wall to front header is eight feet or less, 2x6's for 8- to 12-foot spans and 2x8's for anything more. The rafters are nailed into the notches in the headers and bear on posts directly below at the front.

When cross braces have been nailed between the rafters and the posts, you are ready to install the roof. The panels are laid from front to back with the ends overlapping at least four inches and the sides overlapping one corrugation. The front panels, of course, extend a foot beyond the header. Along the corruga-

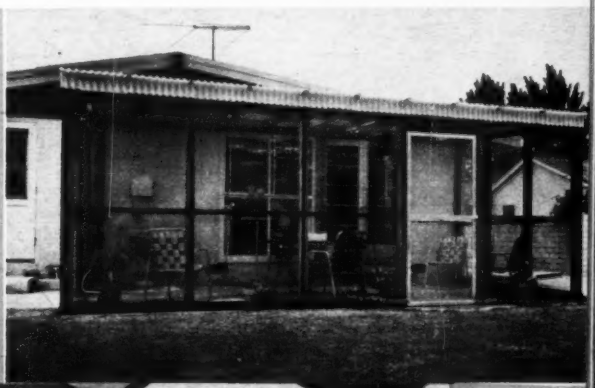
SCREENING is secured to posts and side braces by nailing through strips of wood.

tions, the panels bear on half-rounds nailed to the tops of the rafters; at the front and rear and over the cross braces, they bear on corrugated wood strips which are supplied by the dealer or cut to fit at home on a band saw.

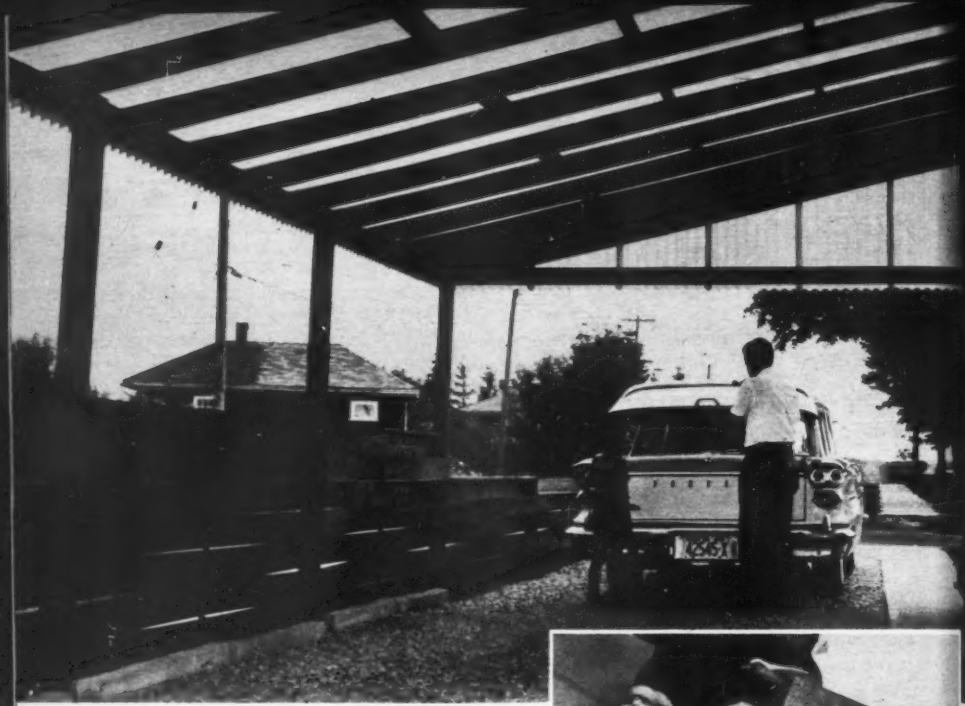
Each panel is fastened down with aluminum nails which have neoprene washers attached. The nail holes are pre-drilled so that there will be no crazing at the fastening points. The neoprene washers prevent water seepage but the nails should go through the crowns of the corrugations as further insurance. Where the panels overlap, the nails should pass through mastic stripping supplied by the dealer. Aluminum flashing, also supplied by the dealer, completes the roof at the rear.

Screening is applied around the sides by nailing it under strips of lath and an aluminum door is hung at a convenient point of entry. A Filon valance on the front header and baseboards inside and out complete the job. Then, with outdoor furniture and a few potted plants, you're ready to sit back and enjoy your handywork. Maintenance will consist of an occasional washing of the roof to remove the accumulation of dust.—*J. S.*

WORK is completed by nailing Filon valances to front header and side rafters, installing baseboards on both sides and hanging aluminum door; photo right.



INSIDE, final touch is addition of outdoor furniture and potted plants. Soft, diffused light filtering through Filon creates a pleasant outdoor atmosphere.



THE FINISHED car port will add plenty of dollars to the value of your home.

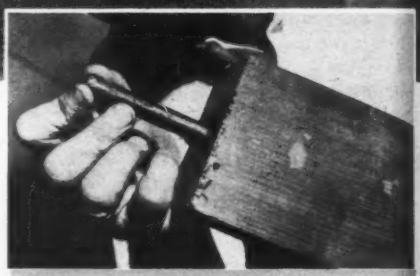
CAR PORT

Got a new car? Well, why not build a new home for Dream Boat!

MODERNIZE WITH PLASTICS

IF you're planning a car port or patio for your home don't overlook the many practical reasons why you should go modern with the use of translucent, care-free Fiberglas panels. They're shatterproof, will not crack or splinter, are weatherproof and cannot be damaged by wind, snow, hail, heat or cold. They will not warp, mildew or rot even under extreme weather conditions. And, they never need painting.

Just to enumerate a few additional



HALF-INCH STEEL dowels secure the header posts to the concrete piers.

CUTTING the cant on the rafters. The first cut sets pattern for other rafters.

NAIL RAFTERS to front and back headers. Provide space to allow for overlap of panels.

INSTALLING cross braces. Paint or stain framework before installing plastic panels.

facts about this wondrous new plastic baby of the building materials field, take note of the following:

Fiberglas panels are easy to install. They're so light a child can handle them. They can be nailed, drilled or sawed with ordinary tools.

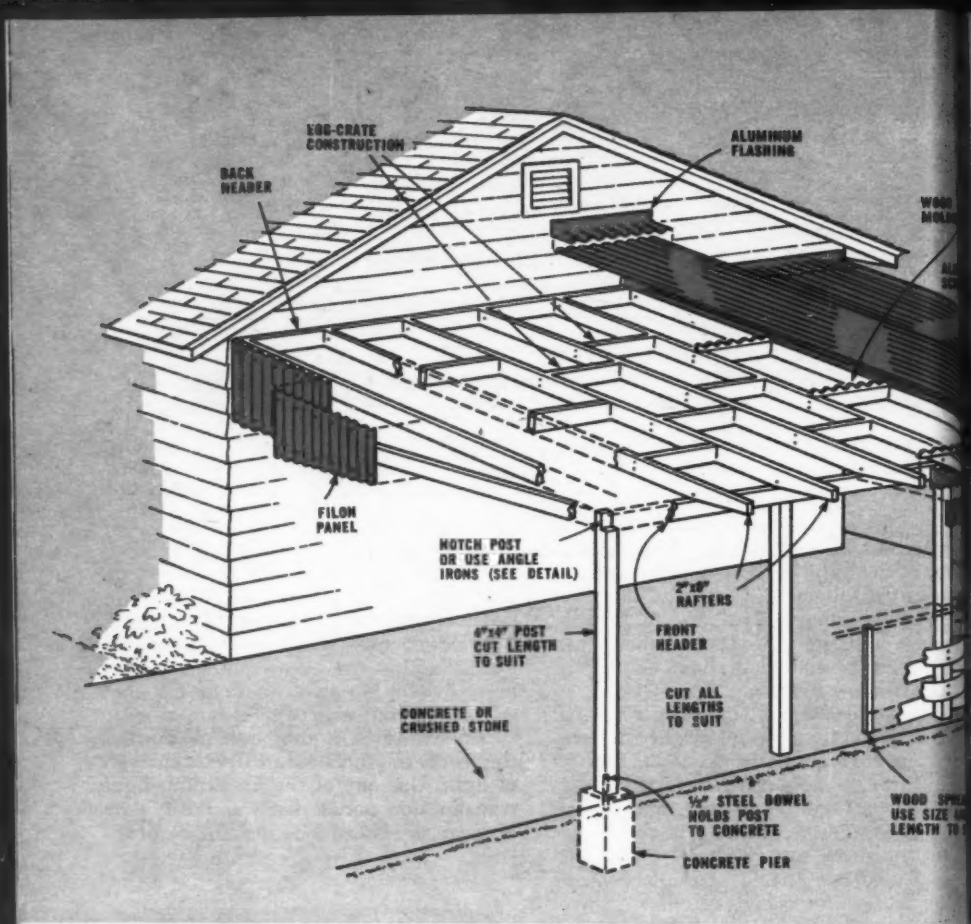
The panels have a smooth surface so that dirt and dust do not readily adhere on their surfaces. An occasional hosing is all that is required to retain their colorful beauty. They are made in a wide selection of colors.

In building my car port I bought Filon panels at the local lumber yard. They are available in flat surfaces, shiplap, two corrugated sizes with 1¼ or 2½-inch ribs, and in 17 beautiful colors —although not all surfaces in every color. For extremely warm, sunny and bright areas, canary, beige, dusty peach, snow, shamrock and tangerine colors are recommended for maximum coolness. Medium light transmission colors are Nile green, yellow, turquoise, forest, emerald, coral, green and aquamarine. High light transmission colors are frost jade and clear.

Meanwhile, back at my car port, it was child's play to unload the corrugated Fiberglas panels I had carried home in a station wagon. Panels come in standard 4, 5, 6, 8, 10 and 12-foot lengths. A good deal of head scratching went into the planning of my car port. It doesn't pay to hurry into these things and I had to determine the type of framework, the number of panels and the size needed, the rafter spacing and cross bracing, etc. But the Fiberglas people are generous with their instructions and so building my car port was a comparative breeze.

Another advantage of the plastic panels is that they are translucent. So, if you are building your patio or car port where the roof will be over one of your house windows, it does not mean that that room in your home will be deprived of light. Use one of the maximum light transmission panels such as frost, jade or clear and there'll be little or no problem.

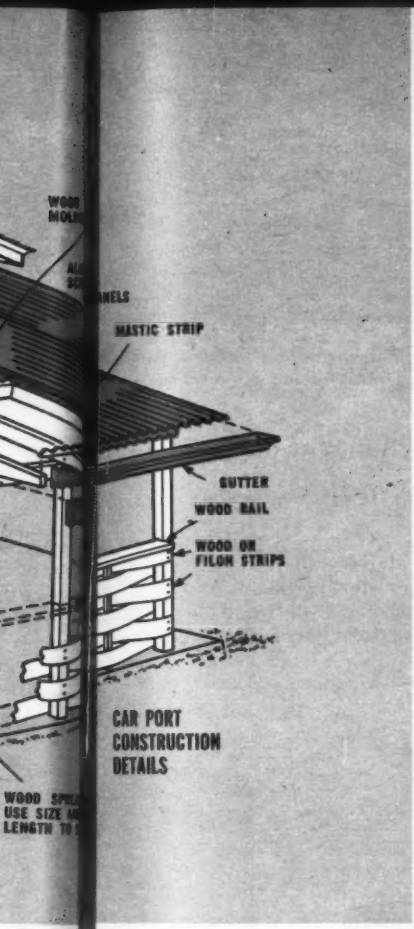
THE PANELS can be cut with a hand saw or a power saw. Use crayon for layout.



It's a good idea, too, to avoid heat traps when you build a car port or patio in a bright, sunny area. Wherever possible ventilation should be permitted between the beams and rafters and between the beams of any vertical wall you may have.

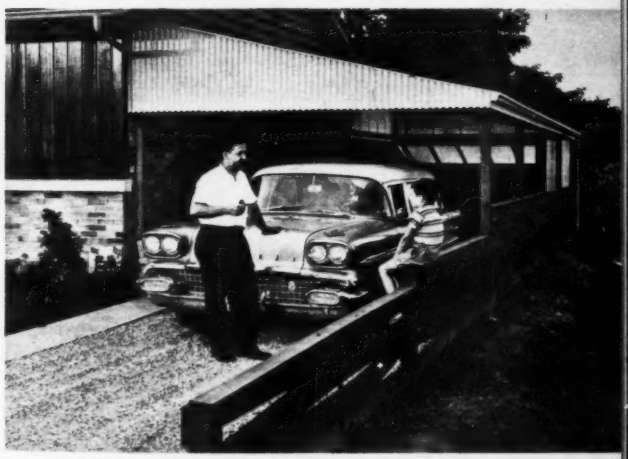
Your building materials dealer can supply you with plenty of accessories for use with these panels such as corrugated aluminum ridge rolls, end wall flashing, side wall flashing, corrugated wood stops, corrugated rubber stops, adhesive for fastening panels to each other or to other materials, special washers for added strength in heavy snow areas, mastic tape for waterproofing, sealing overlapping joints and calking, aluminum nails, etc. •

DRILL PILOT holes to avoid possible crack.



CAR PORT CONSTRUCTION DETAILS

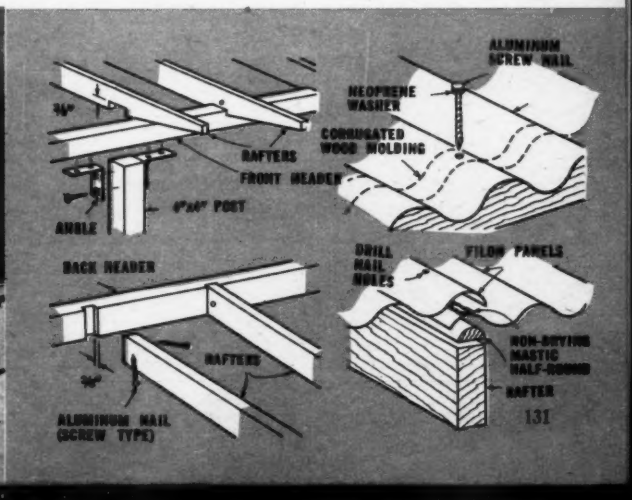
PANEL HAS BEEN nailed to a special molding which mates with the corrugations.



ALL FINISHED! Pop and junior take time out to admire their handiwork. Good show!

e crack.

USE ALUMINUM, screw-type, weatherproof nails every 12 inches.



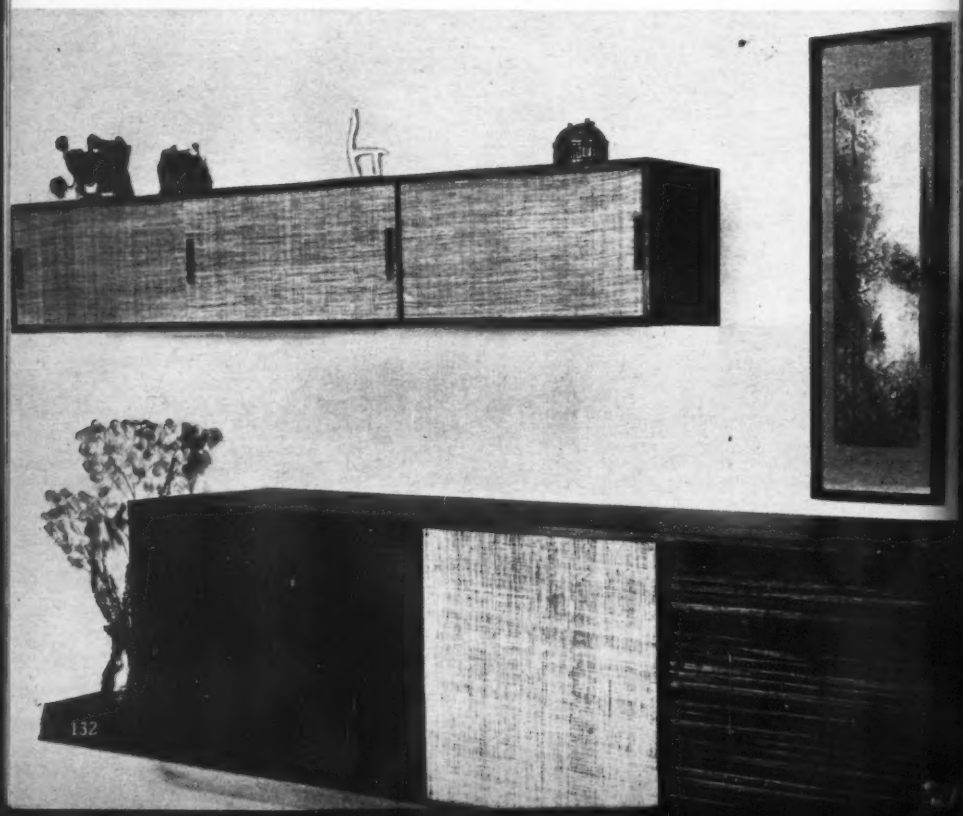
WALL CABINET

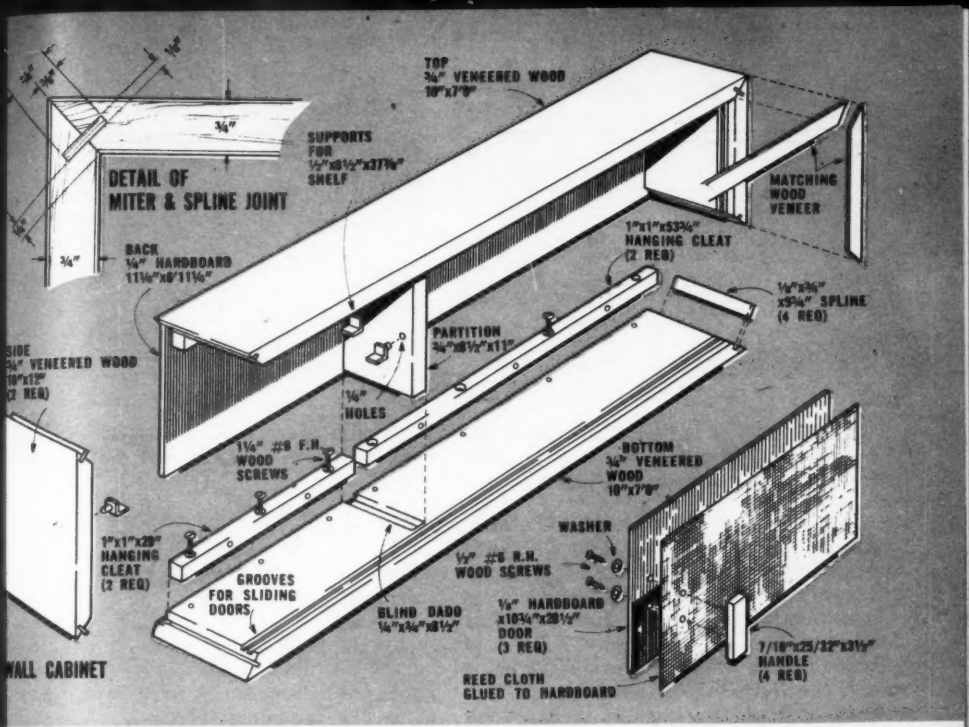
SLOTS for splines are cut ⅜-inch deep in the mitered ends of the top and sides.

Slim, horizontal storage cabinets are useful and decorative on the wall of any room in the house.

THESE slender cabinets, hung on the wall above your hi-fi cabinets or dining room chest, are especially useful for storing glasses and large serving pieces from a silverware set. With hardwood plywood sides and a woven reed covering on the sliding doors, they harmonize with the furniture and dress up any room.

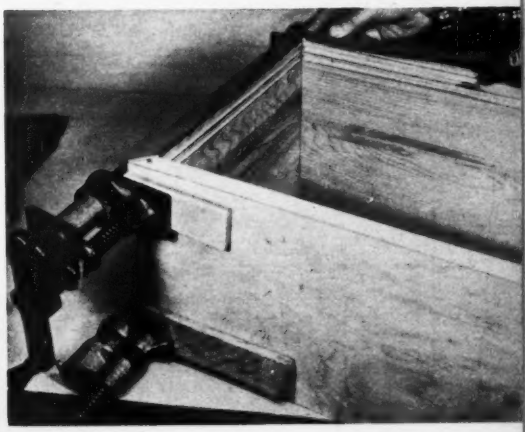
Size, of course, must be related to available wall space. Where there's





room, the length may be up to eight feet; height, however, should not exceed 15 inches and the depth should not be more than ten. The cabinet illustrated is seven feet long and a single

HARDWOOD splines are glued into slots. Be sure that ends come together tightly.

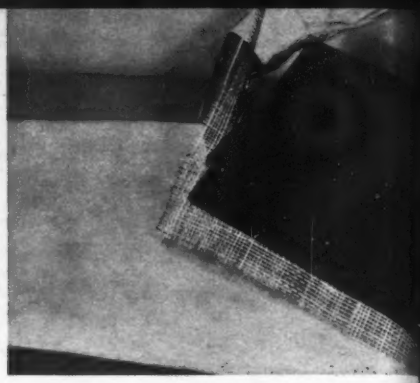


PRESSURE is applied to joints with pipe clamps. Note protective wood under jaws.

ten-inch width, ripped from an eight-foot plywood panel, provided enough material for the top and one side.

To make the cabinet shown, first rip two ten-inch widths from the eight-foot length of plywood. Then saw a one-foot length off each piece for the sides.

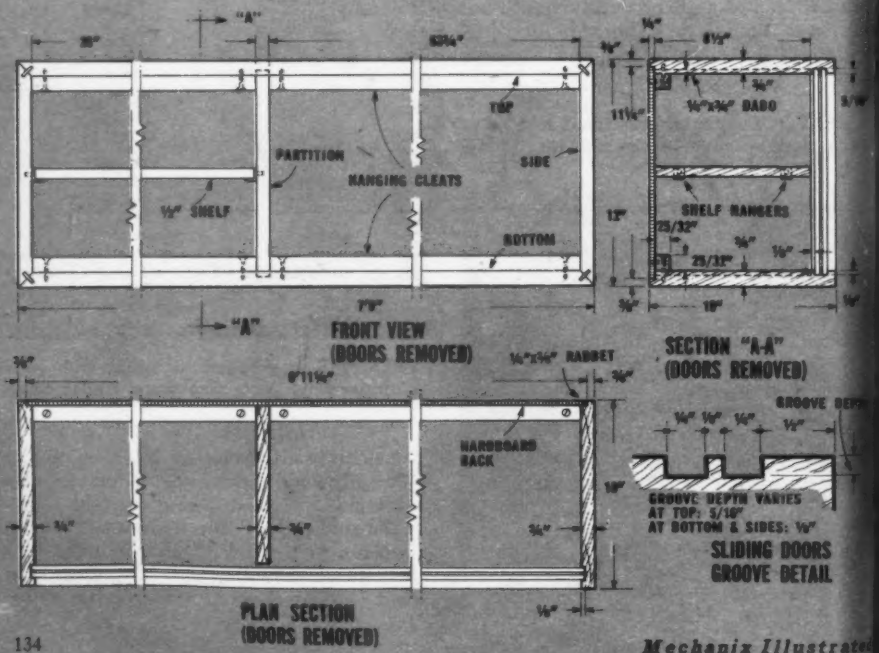
WOVEN REED is laid on door panel which has been given a thin coat of white glue.



AFTER glue has hardened under weighted panel, the edges of the reed are trimmed.

Next, make 45° miter cuts at the ends of the four pieces. This is done by running the board ends against the saw fence; but first cover the fence with a one-inch board fastened from the opposite side with short screws. The saw blade is then tilted 45° toward the fence and the fence is positioned so that the blade just starts to cut into the one-inch board cover. Make some test cuts with ¾-inch plywood to find the position where the blade will just cut through the top veneer and then run all the ends through.

When all the corners are mitered, shift the fence to the other side and retract the blade about half-way to cut the spline grooves. A test cut will show just how far to extend the blade so that grooves will be ⅜ inch into the wood.



Butterfly Shutters

[*Continued from page* 115]

plastic as shown in the photographs below.

Here is a novel but very practical way to make these frames so they are both strong and good looking. The method described below is for miter joints with half-laps.

All the frames are made of regular one-inch pine stock selected for straightness of grain and freedom from knots or sap stains. Rip the wood into inch-wide strips. You need four strips for each frame, of course, but the length will vary according to the window size.

Now cut the strips to size as follows: each strip is made the full length of the frame part which it will fill. For example. If the window is 30 inches wide, 48 inches high, you divide this into the top and bottom tiers. Each tier then is still 30 inches wide, but only 24 inches high, or half the height of the window.

INSERTING the plastic sheeting. All inside edges have been previously grooved.

NEXT, fourth side is inserted. Brads and glue at all four corners finish the job.

Now, divide the tier dimensions into half, as you need two frames, each 15 inches wide, but only 24 inches high.

Cut the strips the *full length* for these dimensions. Thus you will have two strips 15 inches long and two strips 24 inches long. Miter the ends of only *two* of these strips—it doesn't matter which two, but they must be of the same length.

Now comes the jointing. Place the strips with the square ends on the bench, and put the miter-cut ones over them lining up the corners to form the four-sided frame. At each corner draw a line along the mitered end onto the square end below it. This will help guide you in cutting the miter in the right direction.

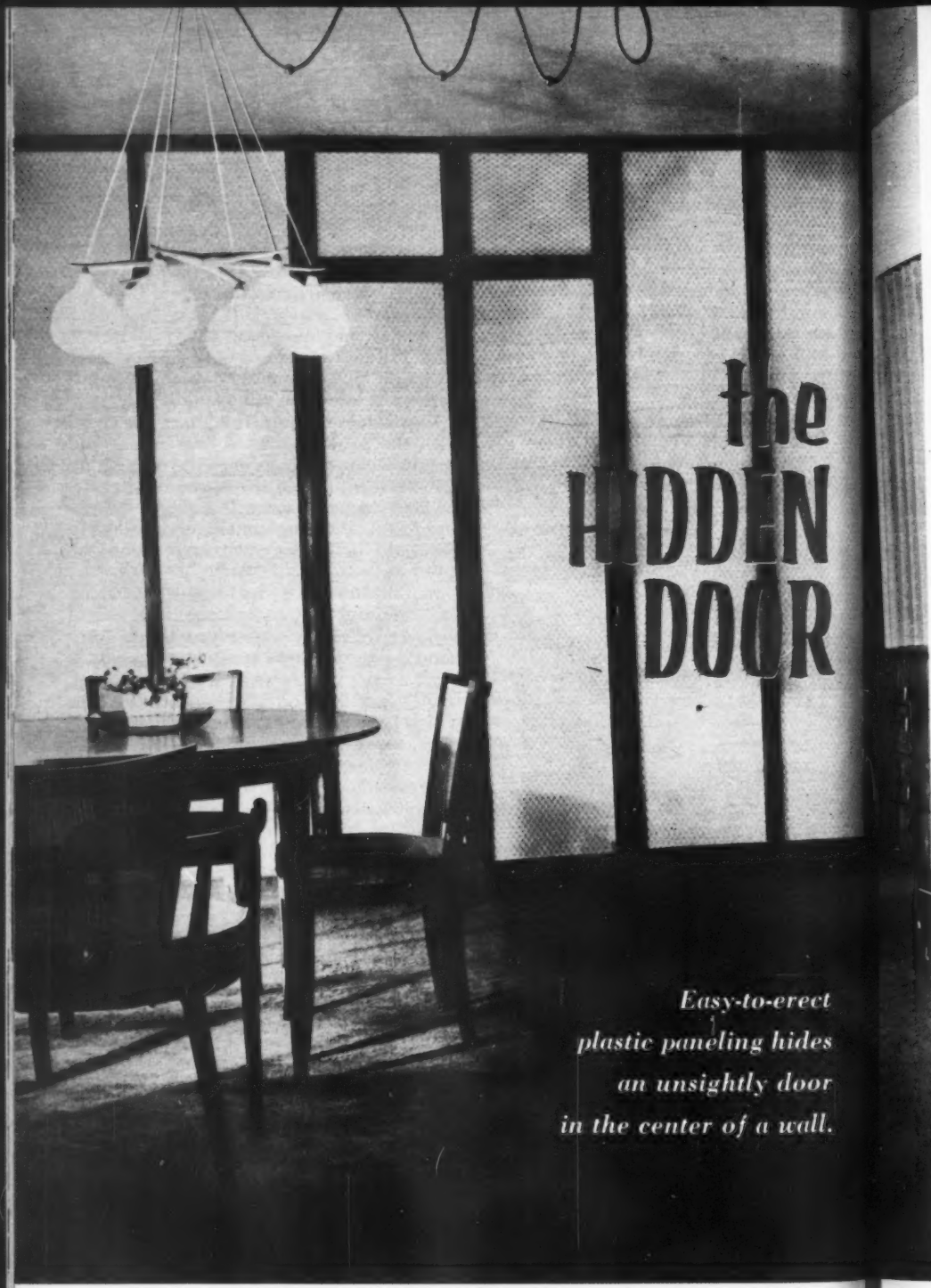
In the miter box, make the cuts along the lines, but only to *half* the thickness of the wood. You can determine this beforehand with some test cuts on waste stock.

When the square ends are half-mitered, turn them over on the two other strips which have miter cuts, mark the new positions, make the square cuts to half-depth in these mitered pieces. Follow drawing.

Once you get the hang of this process, the corner jointing goes very fast and you can do the whole set of shutter frames—and even a dozen more if you need them—in an evening. Each strip is run through the saw to make a groove for the thin plastic sheeting.

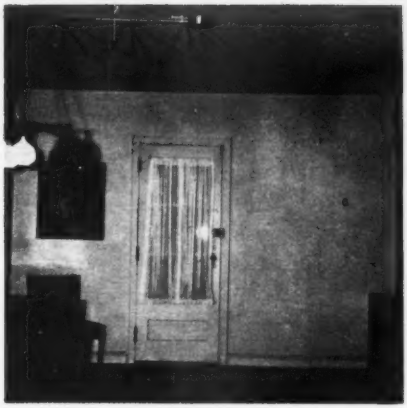
Place the strips in the vise to saw off the waste thickness, then smooth the wood. The corner joints should match perfectly with a neat miter. The double half-laps give you two edges for gluing and nailing so the frames will be sufficiently strong. When gluing, drive a few brads into each side of the half-lap for pressure to eliminate need for clamping. Three sides are joined first, the plastic slipped into the groove, then the final end strip is assembled to lock the frame together.

The shutters are easily installed with hinges mortised into the wood sides and attached to the window frame. Make sure that the hinges are the type that will permit the shutters to fold back all the way. •



the HIDDEN DOOR

Easy-to-erect plastic paneling hides an unsightly door in the center of a wall.



EXISTING DOOR was an eyesore in the center of the exterior living room wall.

FURRING strips are 2x2's nailed to the wall (above). Plastic, in turn, is stapled or nailed to the pine furring strips (below).

By Ralph Treves

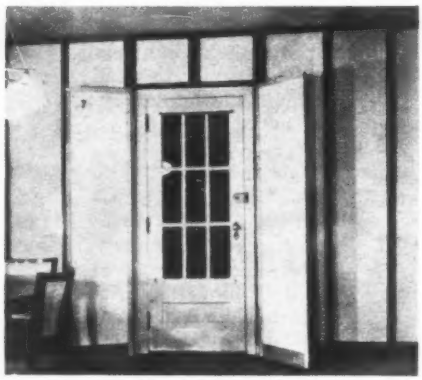
IF you have an unsightly door which opens to the outside from the center of a living or dining room wall, you can disguise it neatly by paneling the whole wall with plastic sheets framed in decorative Japanese Shoji screen style. In the case illustrated, the wall was divided into a series of parallel sections of which two are hinged to provide access to the exterior door.

The plastic laminate, Barclite's Thread of Gold, is available through lumber and building supply outlets. It is made in 29x96-inch sheets and sells for about $1.20 per square foot. It also comes in various other designs and can be cut with shears or a power saw. Ordinarily, the plastic could be nailed directly to the wall and the joints could be covered with thin wood strips. However, in the case of an exterior wall, an air space should be left between the wall and the plastic to prevent condensation on the surface. For this reason, 2x2-inch furring strips were first nailed to the wall. On first thought, the 2x2 strips may seem a little heavy, but they are necessary to provide clearance for the knob and the casing of existing door.

The first step is to decide on the number and width of the vertical dividers, arranged so that two of them can be hinged for access to the doorway. This means that they will probably extend somewhat on each side of the door to retain balanced dimensions. Also consider the width of the panels so that there will be a minimum of waste.

SHEARS are used to cut plastic along a penciled line. A power saw could be used.

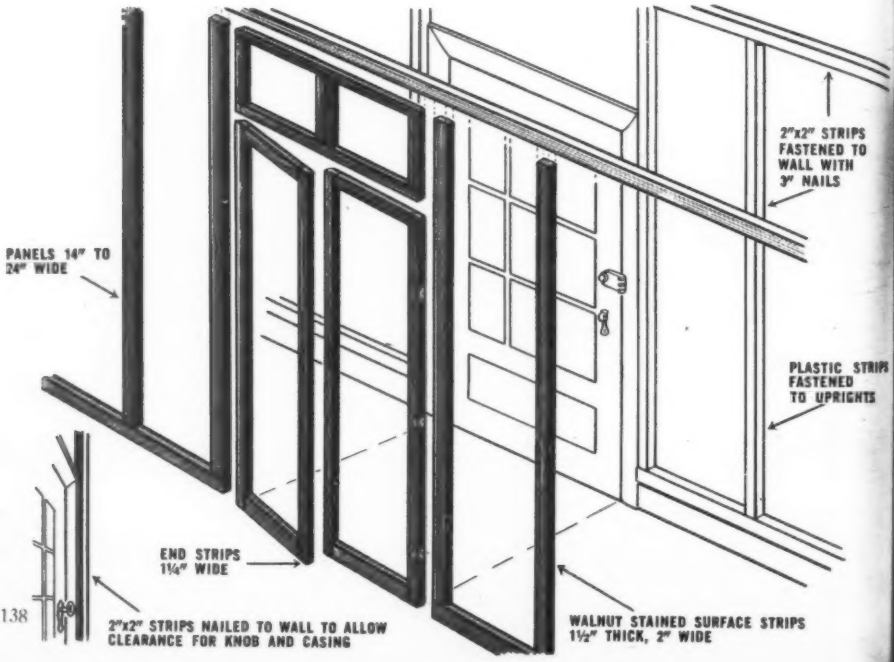
DOOR FRAMES, also made from 2x2's, are rabbeted on inside for the thin plastic.



HINGED PANELS are folded back against the wall to give access to outside door.

When the panel width is settled, the furring is fastened to the wall with three-inch common nails. The top and bottom horizontal strips go on first and then the vertical strips are fitted in between. Then the plastic panels are secured with small brads so that the joints butt in the center of the furring strips.

The surface strips are sanded and stained before they are put up. The base strips go on first, shaped at the ends to conform to the base moldings and the side walls. The top strips follow and then the vertical strips are cut to the exact length and fitted in place. Use 2½-inch finishing nails for this part of the job, countersinking them and covering the heads with wood dough. •



Shower Door Cabinet

[*Continued from page* 113]

Wood strips were wedged between the hinge and the opposite side until the adhesive dried.

To attach the door, block it up in the open position and align it to the hinge. Then drill pilot holes for 6x⅜ screws. Countersink a small hole in the door stop opposite the bullet catch to complete the shower door.

Bathroom Cabinet Construction

The cabinet is made with a framework of 1x3-inch cleats and 12-inch shelving. Aluminum sliding door track is screwed to the top, bottom and sides of the openings. A flush surface is achieved when the Formica strips are added. Coat all the woodwork and Formica surfaces with Formica contact cement. Be careful to align the Formica panels accurately before pressing them in place because the cement grips immediately upon contact. And there is no second chance.

It is interesting to note that the Formica people don't exactly recommend applying their cement to painted plaster walls, yet we broke the rules and did so on the back wall of the cabinet and it worked out satisfactorily. Of course it is important to make a test on a small patch first as various paints will undoubtedly react differently. If the solvents in the cement don't dissolve the paint it's okay to go ahead.

Cut the Acrylite sliding doors allowing a two-inch overlap at the center. To obtain the right height, push the panel up to the top of the upper track. Then holding panel against the lower track, scribe a line along the top of the lower track. Cut at this point. Finish off by adding handles. And there you are! •

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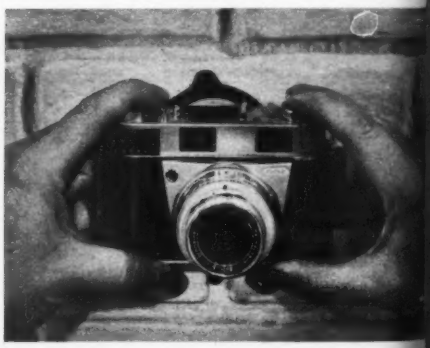
KEY RACK

Make this ornamental key rack out of quarter-inch plywood. It measures 6x13 inches. Sand, shellac and wax the wood. Insert brass cup hooks to hold your various household keys.

WALL MAKES TRIPOD



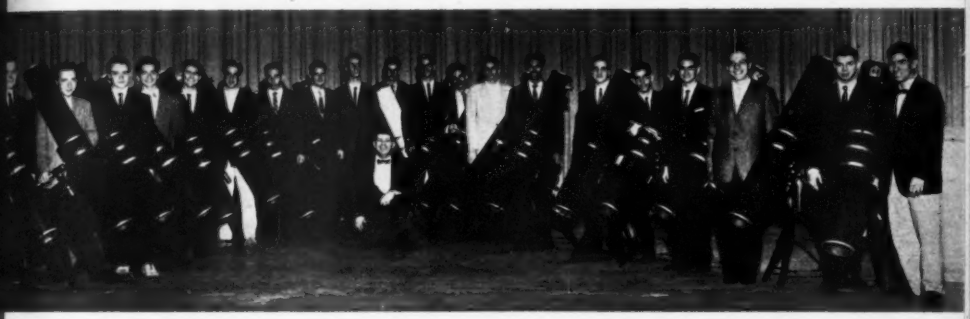
A Mason jar ring placed behind a camera, and the camera held against a wall, permits the shooting of time exposures without a tripod.

The Amateur Telescope Maker's Page

AS the night club comedian said, "If you've never seen a banjo, I would like to have you listen to 50 of them—all at once!" Well, if you're still debating with yourself whether to join the ancient and honorable society of Glass Pushers, take a good look at the photograph below. It shows a class of 20 high school boys who successfully built six-inch reflecting telescopes at an accredited course given at Stuyvesant High School in the city of New York.

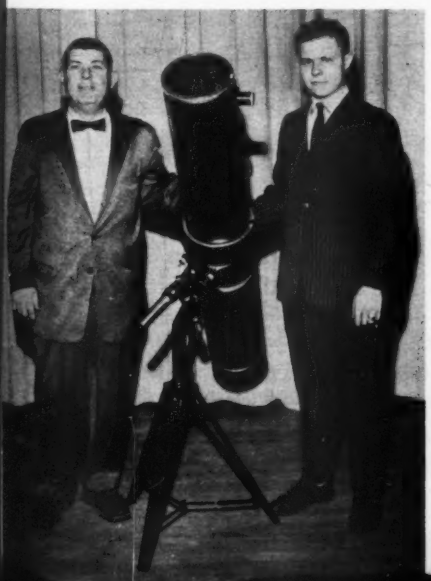
The first term's class was taught by Mr. Myron Wechsler. The telescope mountings were made of pipe and plumbing fittings with force-fit bronze bearings. The second term class, taught by Mr. Howard Natter, used mechanical tubing, aluminum castings and soldered bronze bearings.

Each boy in the class constructed a complete tele- [*Continued on page* 172]

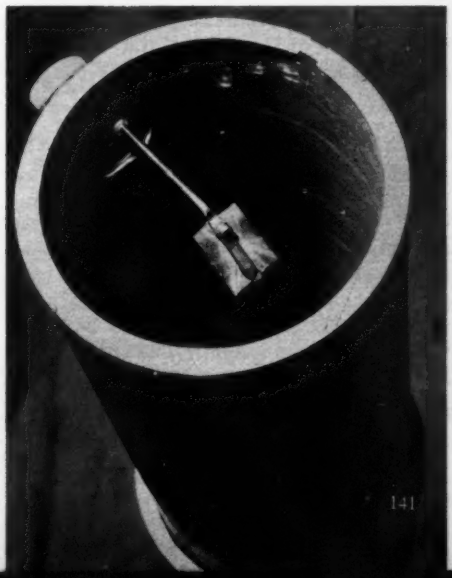


ATTERY OF TELESCOPES, and owners, of the telescope-making class of Stuyvesant High School

BEST-IN-CLASS award went to Joe Robins of Brooklyn. Instructor Natter is at the left.



DIAGONAL MOUNTING DETAIL. The set screw in center adjusts the tilt of the mirror.



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Rabbit Hunting

[*Continued from page* 92]

o the likely places and works them thorughly. He jumps his game while the less xperienced or dull-nosed dog is still coldailing.

Many hunters use springers, cockers and ross-breeds. Some of these are dandy umpers. But for my money nothing can ouch the beagle or basset as a rabbit dog. n country where the rabbits are apt to ole up quickly, if driven hard, my first hoice is the slower-working basset. These logs have voices that thrill a man just to ear. And to watch their slow, patient and horough working on a trail is a joy.

The well-trained hound quickly learns ll the tricks the cottontail can throw at im. He learns to anticipate and outwit the abbit. The cottontail is no fox but he is no limwit either. He doesn't just run blindly n a huge circle, as some hunters think. He ses his noodle and your dog must use his, oo.

A cute trick of the cottontail, when pressed hard, is to make for high grass and weeds, suddenly about face and dash back over his trail straight toward the dog, then give a big leap sideways. This stunt completely floors pups on their first-season hunts and defeats poorly trained and stupid dogs. But an intelligent, well-trained hound is ready for this one.

Another cottontail trick is to circle in his own tracks or the dog's tracks, then dash into a brier patch or thicket, circle there a time or two, then go out the same way he went in. I've seen rabbits run logs, jump streams, hop onto swamp grass that will support them but give way under a hound's weight.

During October and November in most states, cottontails are pretty well scattered all over farmland wherever food and cover are tops. Prime spots to hunt are clover fields, hay fields, corn and alfalfa fields, wheat and buckwheat stubble, hedge rows, brushy fences, dry marshes, weedy pastures and on the edge of woodlots. Come late November and cold weather with the threat of snow, the rabbits change their habitat.

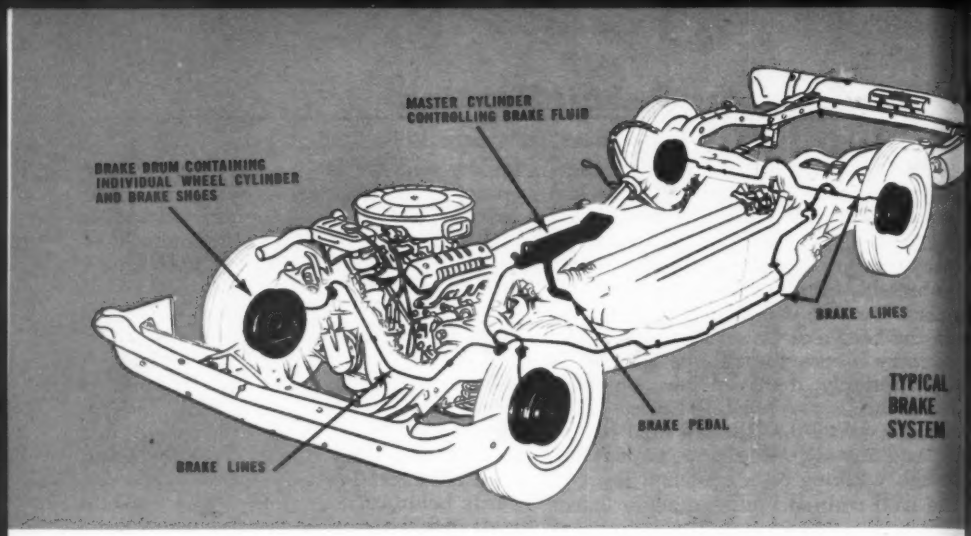
That's when cottontails move to thick cover, alder thickets, brier patches, stone walls, woodchuck holes and brush piles, brushy swamps, big marshes and the protection of dense growths along river bottom lands. During rain or snow, cottontails seek shelter under brush piles and seldom lie out in the open. Find them by jumping on the piles. Once snow falls, cottontails sit tight and are hard to jump. Many stay in woodchuck dens, holes in stone fences and other cover and can't be jumped.

Most cottontail hunting, therefore, is done before snow covers the ground. Hunters gather at the crack of dawn and turn their hounds loose in likely fields, then advance down the fields a good 40 yards behind the hounds. When a rabbit is started, the hunters spread out and stand near where the race began, then wait for their quarry to circle and return to where it was jumped—as it will 99 times out of 100.

In the north, where the large snowshoe rabbit is the prey, hunters avoid open fields and woods. They seek out tangles of cedar, juniper, birch, alders, bog grass and ground hemlock and turn their dogs loose there, for such are the haunts of the big white rabbits of the cold climes. These rabbits, which are really hares, make runways through the deep snow and stick to these even when driven by dogs. When the hounds jump a snowshoe rabbit, the hunters spread out along the well-beaten trails and wait for the hounds to bring the bunny around. Sometimes this is a long wait during which the long-legged hare takes the hounds way out of hearing, maybe even across a mountain before circling back. It's a cold sport and is usually done in subzero and on snowshoes.

The shotgun is by far the most popular weapon among rabbit hunters. They use gauges from .12 down to .410 but the double-barreled .12 is the most used, with #6 shot in regular field load. No call for magnum loads here. Some men use .22 rifles and others hunt rabbits with bows and arrows. These men usually hunt without dogs and stalk their prey with uncanny expertness, hoping for a sitting shot. Some, however, hunt snowshoe rabbits with dogs and depend on a loud whistle as the target circles down a runway, to stop it in its

[*Continued on page* 171]



HOW YOUR BRAKES WORK

CAR CARE

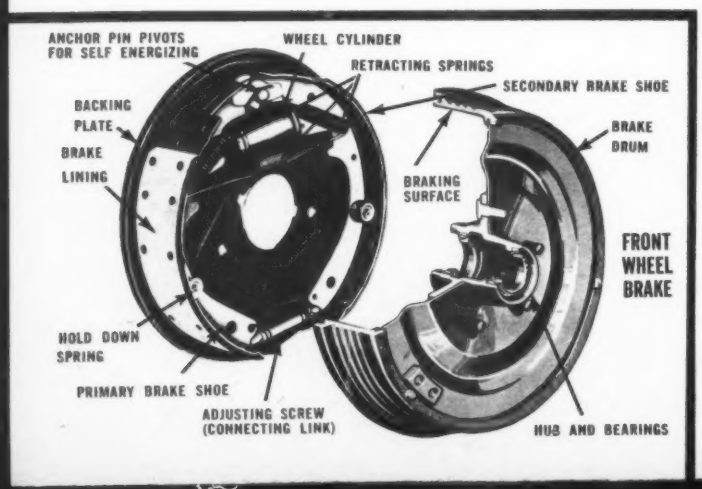
THE key to good braking is the brake lining itself. This should be of top quality and of the thickness originally used, bonded or riveted according to the original specifications. Remember, however, that the effectiveness of the brake lining depends on the brake drums. These too must be in good condition.

Should your brakes start grabbing, don't be too ready to blame the power brake booster. An examination of the linings usually shows that they have grease, oil or brake fluid on them and should be replaced.

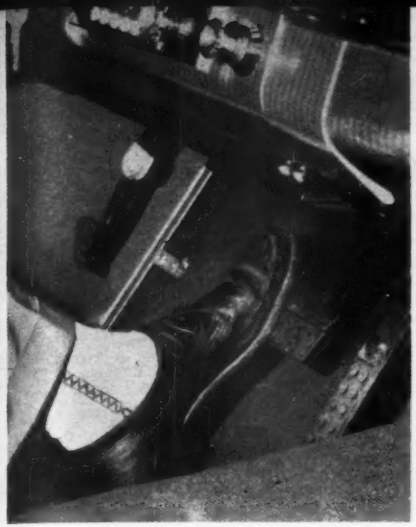
To equalize the braking of opposite wheels it's a good idea to replace the lining on both, even though only one of the linings is damaged. Any damage suffered by the old lining must be corrected before the new lining is installed. Check to see that only fibrous grease has been used in the front wheel bearings; that the rear axle housing isn't overfilled; that the grease retainers are okay; and that a leak hasn't developed in a brake cylinder.

Then there is always the possibility of your own misuse of the brakes. At low speeds a piston cup can be damaged by too much pedal pressure. Skillful use of the brakes will result in safer, more efficient stopping.

Before uncorking some useful facts about the hydraulic actions of brakes and the matter of power assistance, we must first make sure the purely mechanical action is in top shape if we want the car

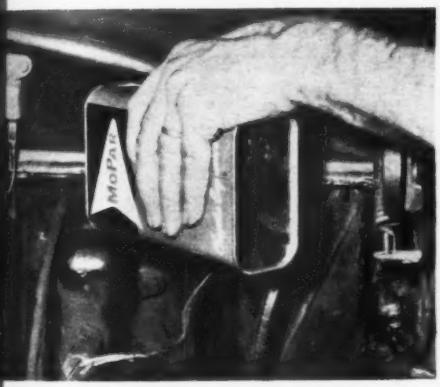


Mechanix Illustrated

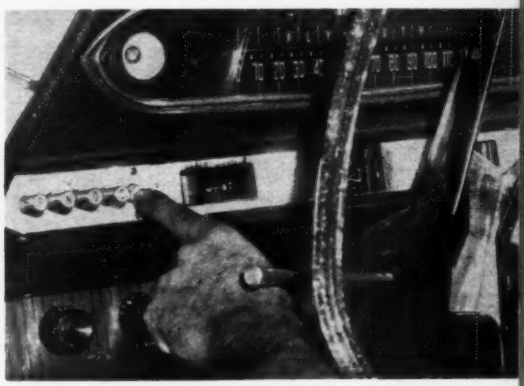


LEAKS OR AIR in the braking system are indicated if the brake pedal continues to depress under hard, steady foot pressure.

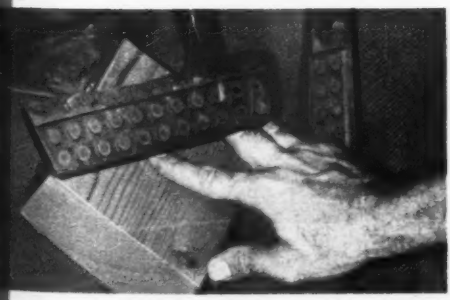
WIPE DIRT from the filler plug of the master cylinder before removing it to add more fluid or to inspect the fluid level.



USE RECOMMENDED brake fluid when replenishing; never the cut-rate bargain kind.



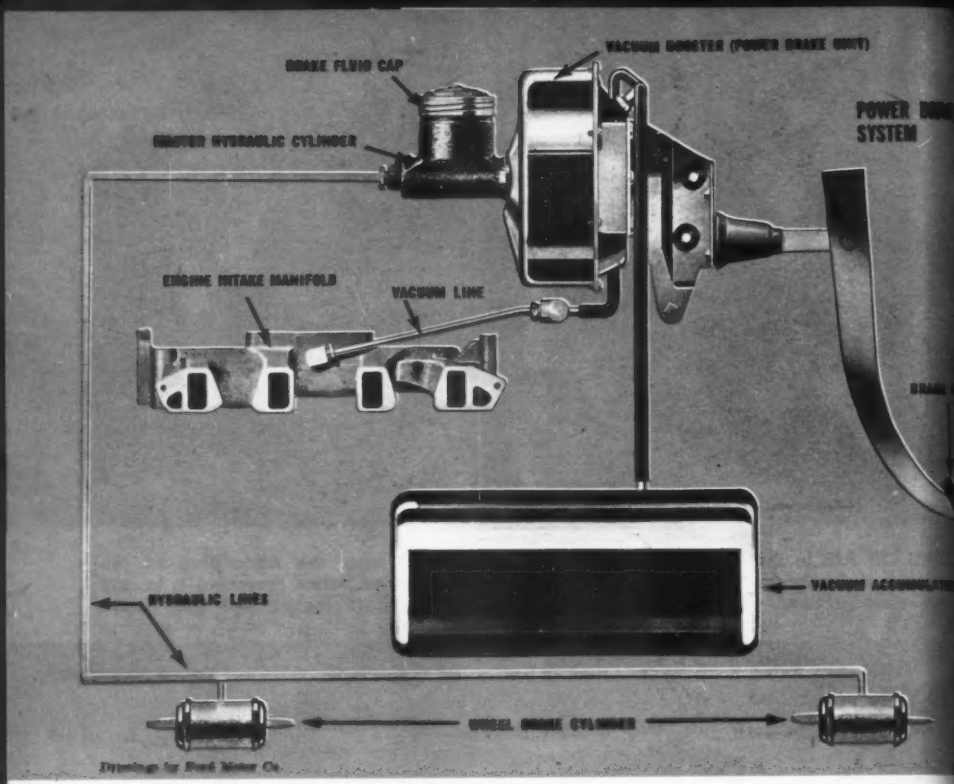
BRAKE LININGS will last longer if you shift into the lower gears on downgrades.



BLOCK holds up brake pedal, prevents loss of fluid when hydraulic system is opened.

to stop quickly. Remember, only the connecting system between the brake pedal and the brake shoes is hydraulic, the rest is mechanical.

A brake specialist will first check the shoe clearance to make sure it isn't binding. If a return spring is weak, not only will the brake shoes drag and the brakes become unequalized, but there will also be accelerated wear on the linings. Sometimes the shoes bind against the backing plates. In other cases the anchors may be rusted or there may



BRAKE FLUID collects harmful moisture: bleed and replace fluid once a year.

be actual damage to the shoe that prevents it making proper contact with the drum. Shoes *must* be concentric with their drums, otherwise there will be uneven shoe engagement that can cause grabbing and uneven wear. One of the most common causes of mechanical brake trouble is warped drums, usually a result of over-braking.

When one car owner complained that his brakes lost much of their gripping power in wet weather, his service man knew exactly where to look for the trouble. Sure enough, the little cover plate for the adjusting hole of the left front brake assembly had not been replaced and water had splashed through it onto the brake.

Another owner experienced his first real brake trouble when he bought a "bargain" brake job. Rechecking the job a seasoned mechanic discovered that someone had goofed by switching the primary and secondary brake shoe return springs.

Sometimes brakes are inclined to

SERVICE TIPS

from Detroit

r expansion may cause lubricant age at the rear axle housing vent w on the new Chryslers and Im- ls. This grease may be forced up out of the vent cover. To correct condition, increase the inside vent eter to 9/32 in., one in. deep, with chamfer added on the threaded

* * *

1361- and 383-cu.-in. Plymouth and oto engines dated 6-24 (June 24,) have a new oil pump relief valve g damper (Part No. 2202845). The damper is designed to eliminate a aulic-type knock or buzzing sound ent in some of these earlier engines.

* * *

here a "fast-charge" battery ger is to be used on a Valiant, both e car's battery cables must be dis- ected from the battery. Never use a charger" as a booster to provide ing voltage.

* * *

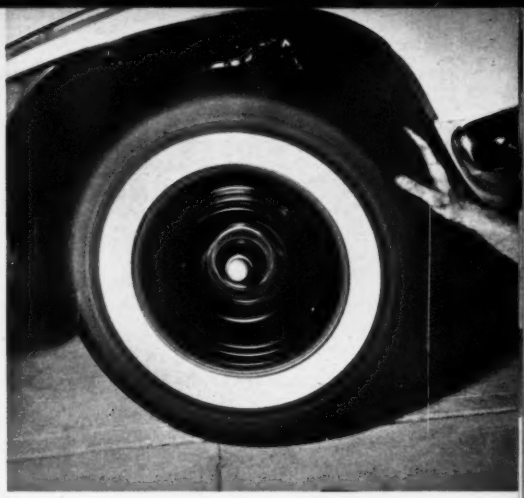
1960 Fords equipped with both the ctAire Conditioner and Overdrive, ference may exist between the orator drain tube and the transmis- case. If so, shorten the drain tube iently to allow proper condensate ing of the evaporator.

* * *

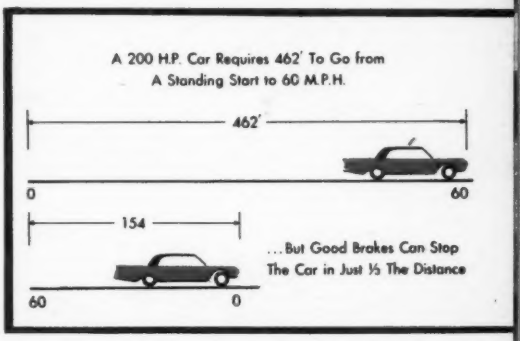
fore unnecessarily removing an erative headlight dimmer switch our new Studebaker, first check h clearance between floor mat and h, then trim the floor mat as re- ed to eliminate any interference.

* * *

e only water or a clear liquid-type cleaner to clean the inside surface e tinted back window on your 1960 rolet. Glass cleaners containing s or other abrasives will remove of the tinting and leave an objec- ble appearance.



AFTER ADJUSTING BRAKES, jack up car and test for drag by spinning wheels.



unstable in their action because there isn't sufficient rigidity to the backing plates. A snapping noise heard after a brake job may mean that the cutting tool used to "true" a warped drum has left a fine thread on the drum's surface. The shoes of this assembly will draw away from the backing plate during brake application, compress the hold-down springs and then snap back against the backing plate.

Brake shoes are often troublesome at the heel and toe. It is sometimes necessary to cut back ends, and chamfer them for a half inch or so. Many cases of noise with bonded linings can be cured by this process.

To insure better shoe engagement, Chrysler de- [*Continued on page* 169]

HOW TO WIRE A SHORT-WAVE KIT

PULL IN DX STATIONS with this four-band regenerative, two-tube radio receiver.

Map courtesy of Hammond Map Co.

By John N. Roe

BUILD this four-band short-wave set and enjoy world-wide reception, ham talk as well as local broadcasts. You'll thrill at tuning in ships at sea, aircraft and stations from the four corners of the earth.

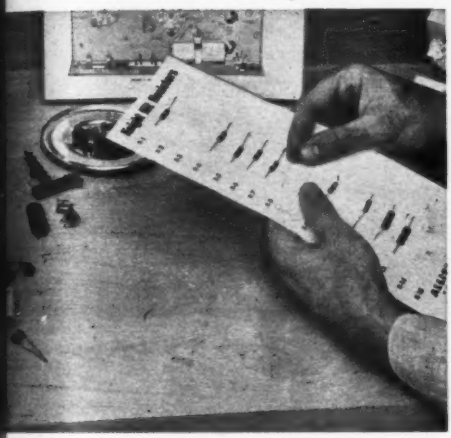
Easy to build and operate, this two-tube regenerative receiver is an ideal set for the junior ham. It is highly sensitive and boasts electrical band spread for easy tuning. Called the Span Master (it is sold by Allied Radio, 100 N. Western Ave., Chicago 80, Ill., for $25.95) the kit is supplied with cabinet, tubes, speaker and all the parts you'll need including easy-to-follow instructions and diagrams.

Simply designed, the set employs a 6BZ6 detector and a 6AW8A dual purpose tube. The 6AW8A serves as an audio and power amplifier.

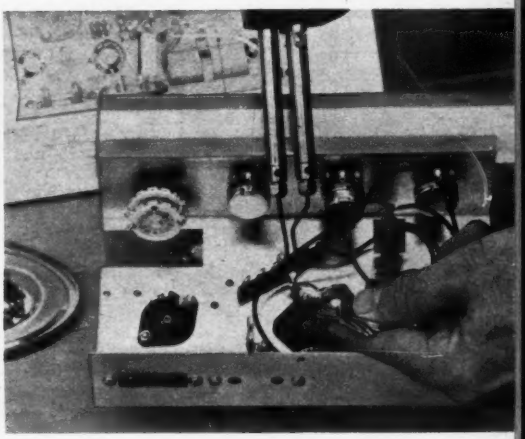
Controls are as follows: Main tubing, band spread tuning, band switch, regeneration, volume and fine regeneration. The band spread tuning simplifies tuning of the crowded short-wave stations. The band switch eliminates coil changing. Simply turn a knob for your

BEFORE STARTING construction, check off each part on the list supplied with kit.

ESPECIALLY large diagrams simplify the wiring. Six step-by-step drawings are used.



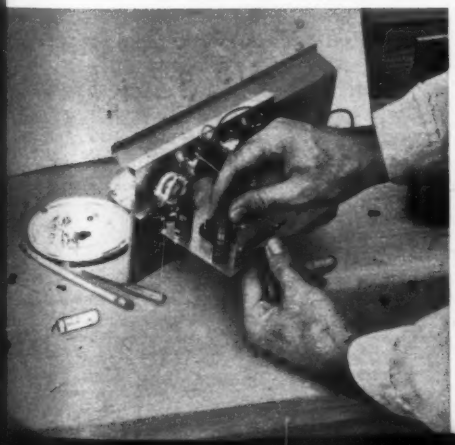
THE RESISTORS used in the set are mounted on a card with reference numbers at side.

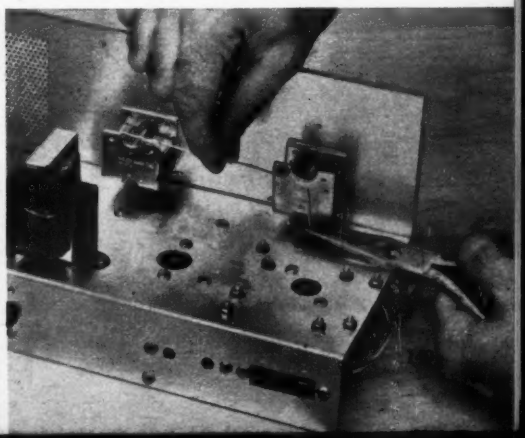


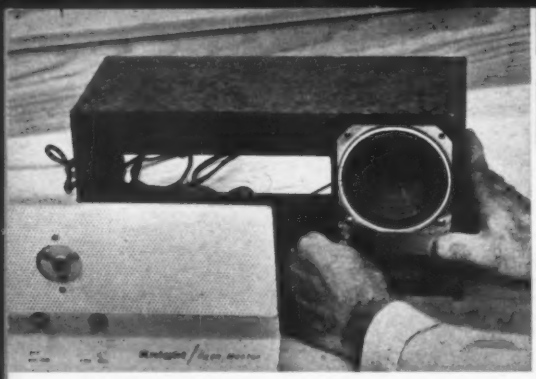
BIG MUST. Always use rosin-core solder when wiring a radio kit; never acid type.

BEFORE INSERTING tuning coil, make sure they match letters stamped on the chassis.

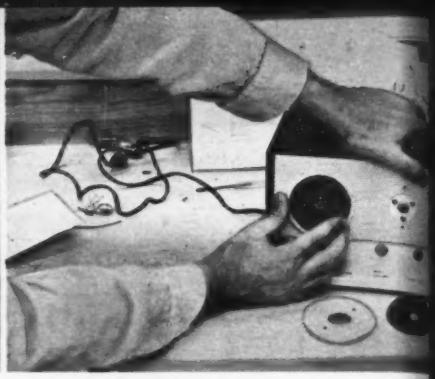
WIRING of the two condensers completes the wiring on the upper chassis of set.



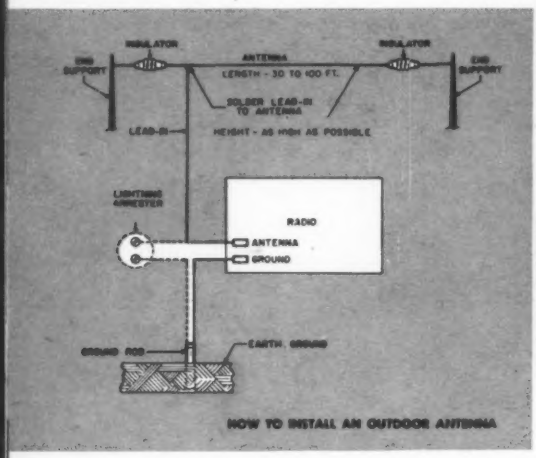




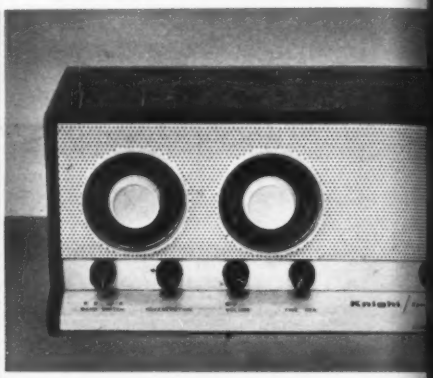
THE SPEAKER is held in place with two mounting clips attached to base of cabinet.



NEARING COMPLETION. Attaching the band spread and tuning dial to front of set.



HOW TO INSTALL AN OUTDOOR ANTENNA



THE FINISHED SET. It has head phone terminals and a speaker cut-out switch.

choice of any of four coils. A speaker-phone switch on the rear of the set is included so loudspeaker or earphone reception is possible. A list of foreign stations is included with the kit stating the country and frequency of each station and what hours they are on the air. Also included is the International Morse Code to help you learn to receive radiotelegraph messages.

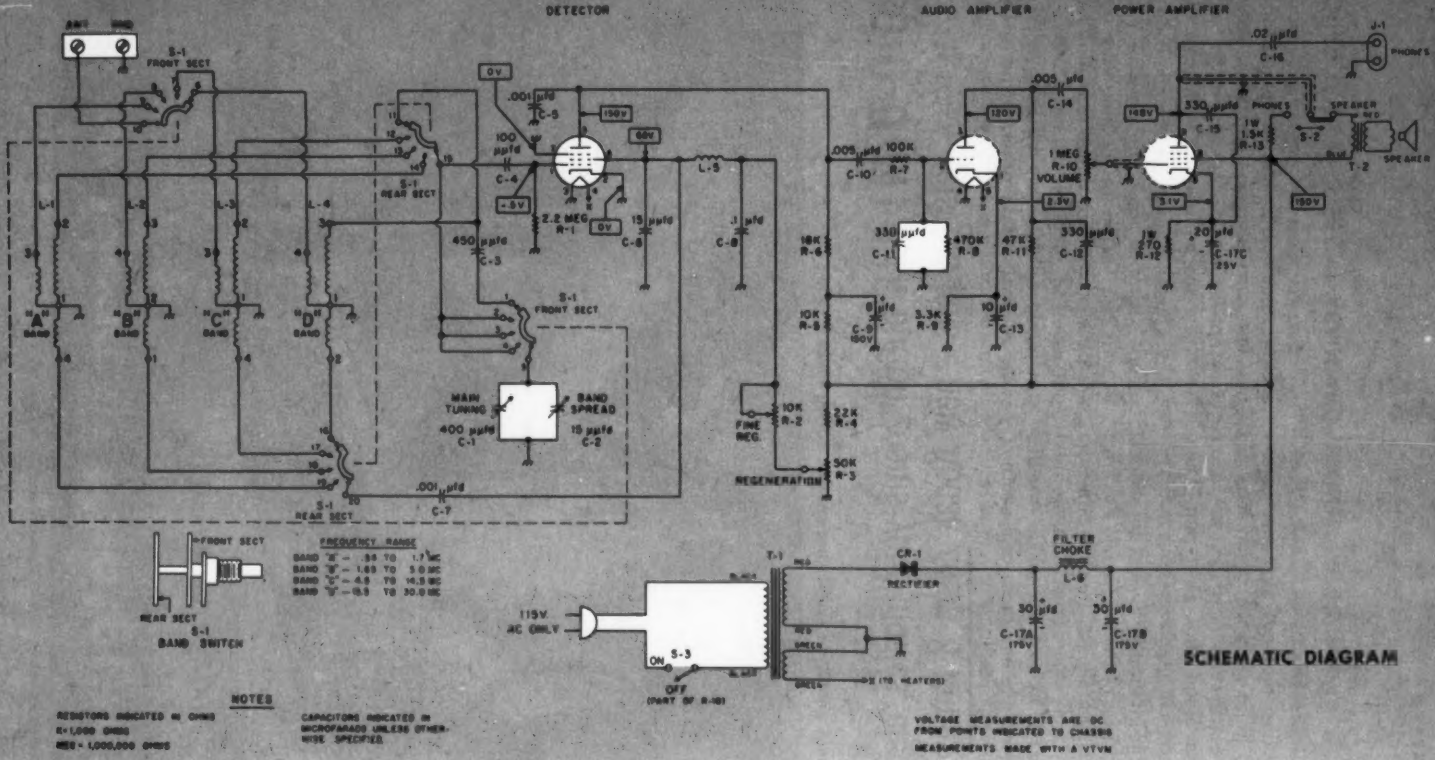
The only tools required for construction are a screwdriver, wire cutter and soldering iron. Wire, solder and necessary hardware are included in the kit.

Begin by checking off the parts against the parts list. If any shortages are noted, notify Allied Radio. Lay out the parts systematically on your worktable to simplify construction. Keep all resistors in one pile, capacitors in another and so on. For the hardware (nuts, screws, washers) use small containers to prevent loss or mix-up. Can lids are ideal for this purpose.

Good soldering procedure is essential and if you have never soldered before it is suggested that you practice first. The instruction manual accompanying the kit devotes a page to soldering technique. It is interesting to note that over 80 per cent of kit failure is due to poorly soldered joints.

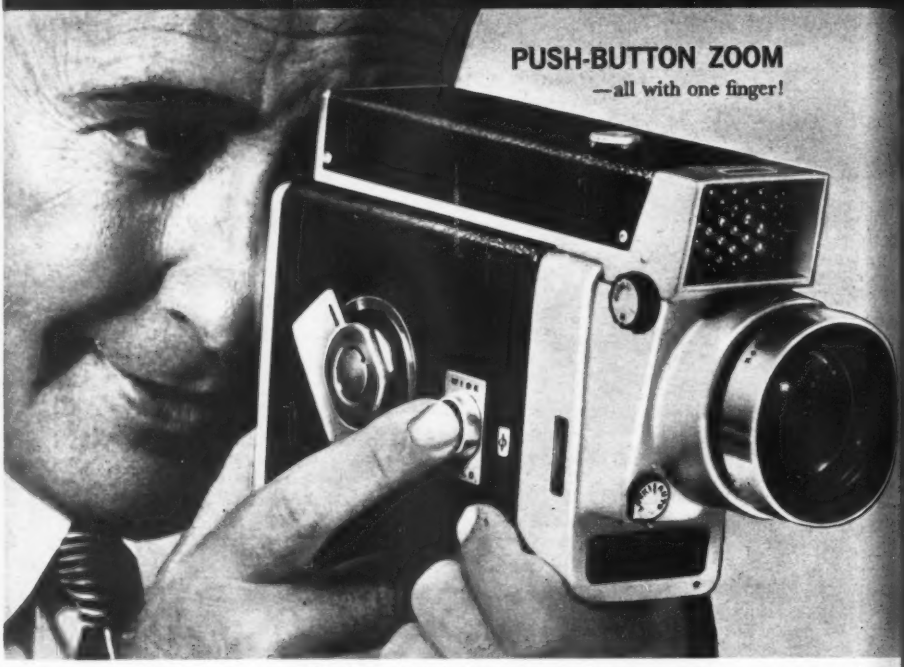
Assembly and wiring of the kit is done in stages. First step is mounting and attaching the controls, tube sockets, terminal strips and transformers. The instructions indicate when a joint is to be soldered. The second wiring step consists of connecting various resistors and capacitors as well as the four coils. Letters are stamped on the coils and these should [*Continued on page* 154]

WIRING DIAGRAM for the Knight Span Master receiver. Numbered parts are listed in the instructions.



WIRING DIAGRAM for the Knight Span Master receiver. Numbered parts are listed in the instructions.

New Ideas in Photography



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Z-O-O-O-M! Push button zooms your movies, electric eye sets the lens—new Kodak Zoom 8 Reflex Camera

Now! A push button brings you the most marvelous thing that's ever happened to movies —the zoom! You look through the finder and before your eyes people and objects suddenly swoop close and fill the scene. Or, starting with a close-up, the scene suddenly widens like opening the curtain on a gigantic stage.

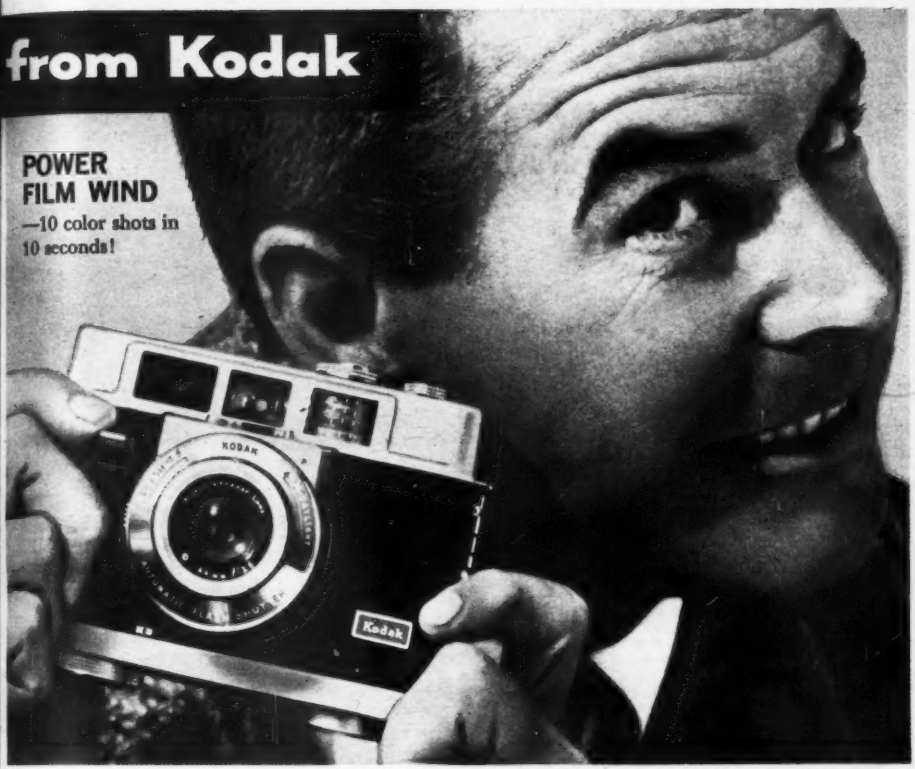
Since you view through the lens of this new Kodak Zoom Camera, you see exactly what will appear in full, brilliant color on your screen at home—a wholly new and dramatic experience in movies you make yourself.

You can also zoom manually with this 8mm camera, or set the lens in advance at any position from wide-angle view to telephoto close-up, without taking a step. And the camera's electric eye makes all the exposure settings for you . . . automatically.

Inspect this remarkable new movie camera. You'll find it at your photo dealer's now. Price: less than $190, or as little as $19 down. See your dealer for exact retail price. Many dealers will take your old camera in trade.

Prices are subject to change without notice

PICTURE IT NOW . . . SEE IT AGAIN AND AGAIN!



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All-purpose flexible repair material called Devcon Rubber, cements wires of plug cords in place and prevents their fraying or shorting.

Wire A Short-Wave Kit

[*Continued from page* 150]

match corresponding markings embossed in the chassis. The third wiring stop consists of connecting the band switch to the various components. It is important to note that all wires to the switch must be as short as possible for best operation of the receiver. To assure proper orientation of the switch, a colored dot is placed at the bottom center. This must line up with the bottom of the chassis. Fourth and fifth wiring stages consist of connecting the remaining capacitors and mounting the speaker.

To prevent vibration, the speaker is mounted onto a bracket with rubber spacers. Finally the two variable condensers are wired. All wiring should now be checked to make sure that bare wires and leads are not shorted.

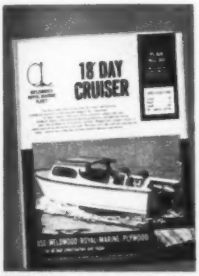
Mounting of the dials completes assembly. Insert tubes, plug in the set and get ready for real enjoyment.

A good antenna is a must for short-wave reception. A single-wire aerial 30 to 100 feet long is ideal. Be sure to use insulators at both ends of the line. In some localities it may also be necessary to use a ground connection.

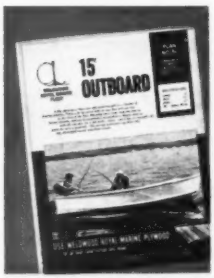
You'll find it great fun to listen in on ships at sea, planes flying overhead, tugs in the harbor, police calls and the inevitable chatter of hundreds of radio hams. •

PUT A SUMMER FULL OF BOATING FUN UNDER YOUR TREE THIS CHRISTMAS

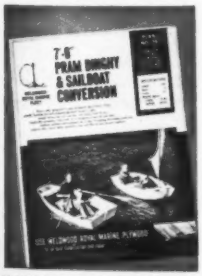
Build your own boat this winter with Weldwood Royal Marine Plywood. Free step-by-step plans at your Weldwood lumber dealer's.



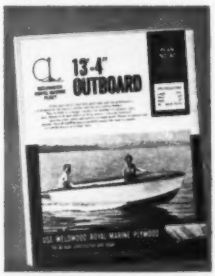
PLAN #60. A big boat for family comfort and safety, she takes outboards up to 40 hp. Build her to last with big, supple sheets of Royal Marine Plywood.



PLAN #50. This open water boat has storage to keep you comfortable on a two-week cruise. Easy to build with strong, seagoing Royal Marine Plywood.



PLAN #75. This sturdy boat is light enough to haul on your car roof. Plans include instructions on how to convert her into an easy-to-handle sailing dinghy.



PLAN #40. Here's a trim sportster for the amateur boat-builder on a modest budget. She delivers speeds up to 35 mph with power up to 25 hp.

START NOW—be ready when the boating fun begins! You save money when you build your own boat—and now it's easier than ever. Weldwood's free new Royal Marine boat plans give full details in diagrams and photos, plus complete materials list. For extra economy, there's Weldwood® Royal Marine Fir Plywood; for extra durability and unusual paint-holding qualities, Weldwood Royal Marine Duraply®; for natural wood beauty, Weldwood Royal Marine Philippine Mahogany. All give you years of low-maintenance boating fun. Pick out your boat plans—*free* at your Weldwood Royal Marine lumber dealer's. Or mail the coupon today for your plans.

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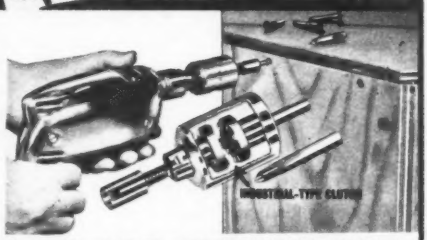

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Tune In On The World

[*Continued from page* 65]

filters, trimming controls and tuning meters. It's a good investment for SWLs who may get a yen to become radio hams; the superhet makes the receiving half of a ham station.

Next in importance to the set is the antenna. Most popular sky hook for SWL is a simple long wire. Number 14 soft-drawn copper is a good combination of strength and flexibility. Run 30 to 100 feet of it from your house to a pole, tree, barn, neighboring house or whatever you can reach. To keep it from touching any surfaces use any of the various stand-off and feed-through insulators available from electronic supply houses such as Allied Radio, 100 N. Western Ave., Chicago 80, Ill., or Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.

Things to avoid: falling off the roof as you fiddle with your antenna and contacting power lines. But with these twin dangers in mind, do fiddle with your antenna to try to chase down the very distant stations. Tuned antennas give you a sharper response over a particular band but that jazz is for the more advanced students. Just remember, it only means using a hunk of wire of a certain length.

Apartment dwellers with intolerant landlords who won't let them horse around on the roof can resort to running a wire around a room, as high up as possible.

Tuning a short-wave set may look complex but a few twirls of the knobs give you the basic procedure. There's one main tuning knob that selects a given band and a bandspread that picks out individual stations. Then you can use your crystal filter and other adjustable accessories to reduce interference. After playing with your set awhile you'll learn tricks like flipping the code reception switch to hunt for signals.

[*Continued on page* 158]

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Tune In On The World

[*Continued from page* 156]

lost in the noise. This device superimposes a tone on the station that's easier to hear than the station itself. Once the tone is zeroed in, the code reception is switched off and you go to work on the signal itself.

Tuning the short-wave set is much more sensitive business than tuning the standard broadcast set—and there's the fun of it. On the bandspread the spacing between stations is less; a very critical point gives best reception for a given station. And a slight increase in volume may make the difference between hash and an intelligible signal.

If you have the itch to try SWL, you should know that the future of the sport promises bigger and better thrills. You'll be in on the first voyage to the moon and pick up signals from space ships and missiles of all sorts, manned and unmanned. SWLs will get a free ride on every adventure in outer space. Why don't you go along? •

Tom Tests '61 Plymouth

[*Continued from page* 91]

you've got your girl friend along, you might soothe her with Dizzy Gillespie singing Brahms, or the Boston Symphony's rendition of "Alley Oop." But back to the car . . .

The new Plymouth features an alternator, replacing the old-type generator. This will prove handy in keeping the battery up when idling in traffic. You won't have to shut off your air conditioning, windshield wiper or even Stokowski, as these twirlers will keep a charge flowing into the battery as long as the engine turns, regardless of speed.

Behind the wheel and onto the track, I squeezed this little goat out for many miles on the high-speed banks and the top speed averaged 118.42 mph. Now this was a car as fresh as next spring's tomatoes. It had fewer land miles on it than a gondola in Venice. With a little loosening-up here and a little re-working there, á la Smokey Yunick, this bucket would have purred up to 125 mph while still maintaining a 72 pulse rate. This Golden Commando engine

[*Continued on page* 160]

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Tom Tests '61 Plymouth

[*Continued from page* 158]

in its stock form would yank the fuzz out of its two competitors in similar suits (and I'm not referring to "Police Specials").

On a number of runs, this '61 Plymouth Fury with a three-speed automatic transmission averaged 8.1 seconds for 0-60 mph and there aren't many cars that can match this in showroom state. With the available manual transmission and a capable stick jockey, I haven't a doubt in the world that you could break this rig under eight seconds for 0-60 mph any time you felt so inclined. If you really want to move across the ground, there is a still-hotter 383-cubic-inch engine which should have enough exhaust power alone to fell a redwood tree. Unfortunately, when this test was made there were no Plymouths available with the big blockbuster. But by the time you read this there will be plenty available and you can place your order, if screaming performance is what you desire.

Around hard test bends I threw this Golden Commando Fury into a series of slides and made controlled spins with less trouble than it takes to sneeze. I've written about suspension so many times that it seems redundant to point out the excellent torsion-bar suspension properties of the Plymouth but for our three new readers in Flatfoot, Ark., here I go again. The Plymouth has by far the finest suspension in its field. In fact, to go a step further, it has better suspension than any car made in America that isn't a Chrysler product. It's as sure-footed as an eight-legged dog and grooves like an Atlas going up a chimney. This fact not only makes the Plymouth the most pleasant of all cars in its class to drive but the safest as well.

What kills me is when I talk to some of the competitive engineers and ask why they make their offerings so mushy in the corners. They answer, "Because most people want a soft ride." Well, boys, Plymouth has a better ride than your mushpots and can still stay on its feet—so it looks like your turn to punt.

In summing up, I believe Plymouth is the Best Buy in the "low price" field. I realize my saying so won't push Plymouth one inch higher up the ladder than third place in the '61 production race but it is my job to point it out. •

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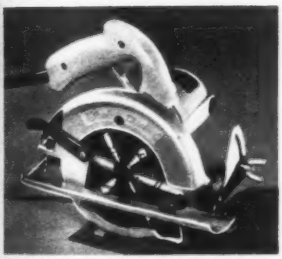

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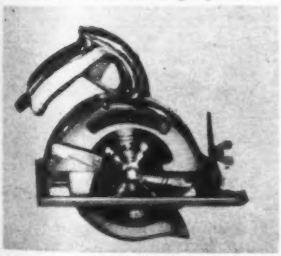

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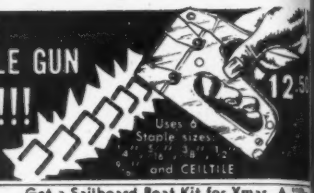

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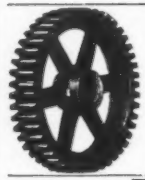

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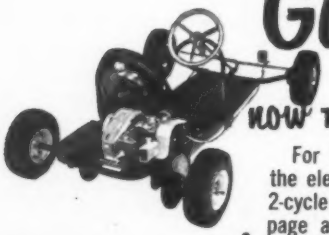

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Tom Tests '61 Chevy

[*Continued from page* 87]

vettes in this country have been doing better in sports car races, taking many of the B Modified and B Production class wins. When the A.M.A. ruling went through in 1957 barring factory participation in open competition, many thought that it came at just the wrong moment for Chevrolet. It was felt in a number of engineering circles that Chevy was within a year or two of producing a world's record sports car and that this project was nipped in the bud by the "goody-for-volleyball" boys. Lance Reventlow, using Corvette engines in his Scarabs, dominated the American sports car racing scene for some time. In fact, Corvette almost made it all around and the fact that they didn't certainly wasn't Ed Cole's fault. The Corvette has excellent brakes, great performance and nothing can even approach it as a sports car buy until the price is at least doubled.

Back to the breadwinners—the Chevys of the regular line, meaning the cars that outsell all others: Impala, Bel Air, Biscayne, Biscayne Fleetmaster and a large assortment of station wagons to go with every series. The wagons for '61, like the sedans, resemble the 1960 offerings with a mustache trim. The grille is slightly different and the batwing tail is gone forever. Whether the public will or won't accept this as an improvement in styling is a question Chevy would have gladly paid a million dollars to know the answer to just a few months ago. The Chevys are all sound values and whether they fit your particular idea of a good investment or a dream bucket, only you can decide.

In summing up, Chevrolet has more models to offer than Kellogg has rice flakes. You can buy a Chevy as bare as a nightshirt or as loaded as Patrick McGinty at his mother-in-law's wake. If you should elect to buy a Chevrolet, you'll have lots of company because whether the public goes for the new styling or not, it's a million-to-one bet that this time next year Chevy will be in either first or second spot as the largest producer of automobiles in the world. •

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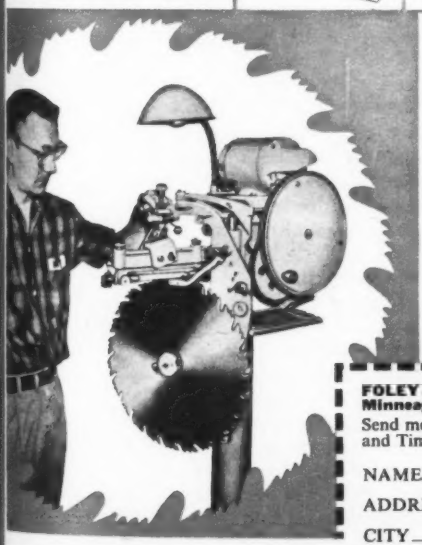

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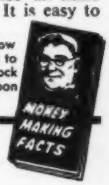

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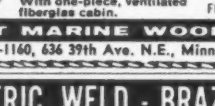

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Do-It-Yourself Assassin

[*Continued from page* 83]

in high office so feared for their lives th they customarily employed a food a wine taster, a profession with a limited f ture.

Poisoners of those days were an genious lot. One jealous young m smeared the inside of his older brother boots with nitro-benzene, a highly tox liquid. At a dance the liquid slowly pen trated the brother's socks, staining his fe and ankles. His system absorbed the poiso and he died soon after the dance.

The name Borgia has come to be almo synonomous with death by poison. Th Borgia family, especially Caesar Borgi were the most artful assassins in the anna of infamy. Historians say they made the own special powder and liquid poison The powder, called cantarella, resemble white flour and supposedly tasted lik sugar. Its formula died with the Borgias— and it's just as well.

The Borgias administered their leth potions in food and drink. But the mo notorious of their methods centered on th ring of Caesar Borgia. Worn on the middl finger, this innocent-looking murder ma chine had two sharp hollow claws of meta and a tiny storage space for poison. A vic tim could be fatally poisoned by simply shaking hands with Caesar.

Through the centuries poisoners have used a variety of toxins. They fall into several classes but all act in one of three ways. Generally, they are irritants, blood poisons, or nerve poisons. Irritants produce pain, vomiting and purging. Blood poisons affect circulation, destroy red corpuscles or act on the coloring matter or waste products of blood. Nerve poisons, of course, include narcotics or stupefying drugs and delirium and convulsion-producing agents.

A mere listing of toxic agents used by poisoners at one time or another would require quite a few pages. Among those most frequently employed are arsenic, cyanide, strychnine, curare and belladonna. Poisoners through the ages have shown a marked preference for arsenic, a metallic element usually found in certain ores. Some 90 per cent of all poison deaths have been caused by this one chemical.

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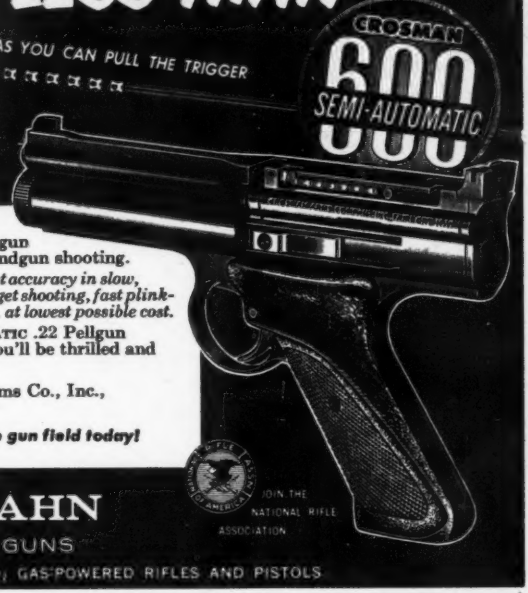

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Cyanide and strychnine, both plant-derived, are two of the most violent poisons. A small dose of either usually results in death within minutes.

Curare has figured in murder ever since Sir Walter Raleigh discovered it in South America in 1595. Natives of the area dipped their arrows in this toxic, plant-derived substance. When struck with the poison tip, animals became paralyzed. In humans, curare results in paralysis of the back, arm and leg muscles. Finally the muscles of respiration are affected and death follows.

Belladonna, also a plant-derived poison, is slow-acting. It produces obscure symptoms and prolonged illness and can be administered over a period of time until death ultimately results.

Throughout history feminine murderers have displayed a peculiar penchant for poison. Some 70 per cent of the world's poisoners have been women. Perhaps Locusta, one of the first notorious poisoners, set the pattern for the long parade of female poisoners who followed her.

Locusta plotted with Empress Agrippina, mother of Nero, to send Emperor Claudius to an untimely death. These two witches brewed a vile potion, then concealed it in Claudius' favorite dish—a ragout of mushrooms. It was the last ragout he ever ate.

Locusta subsequently practiced her hobby in the service of the State, guaranteeing the prompt and permanent dispatch of unfriendly politicians. Her talents became so indispensable that she conducted a school for poisoners, thus insuring against the loss of her secrets.

In this modern scientific age homicidal poisonings have become rare, chiefly because science has outstripped the evolution of a perfect poison. So far as expert toxocologists know, the rare East Indian poison that leaves no trace, favorite of detective story writers, simply doesn't exist. Today, even the most ingenious toxic agent in the hands of a master assassin has little chance of escaping detection.

A poisoner's chance of beating the rap when he's apprehended is practically zero. Unlike many other types of homicide, poisoning is not committed in a moment of uncontrolled passion; it requires planning,

[*Continued on next page*]

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preparation and subterfuge. It is always characterized by premeditation. The poisoner, therefore, can expect the usual rewards of murder in the first degree.

Despite the odds against escaping justice, there are still those who attempt poisoning in one form or another. Not long ago a housewife used an old Oriental method of disposing of her husband. This modern-day Locusta mixed pieces of hair in her husband's soup during a four-month period.

The foreign material eventually caused his death by accumulating in a ball and blocking his body passages. As usually happens, though, medical examiners discovered her crime and she was executed. Poisoning, as a do-it-yourself pastime, has a long, inglorious past and no future at all! •

Win At Pocket Billiards

[*Continued from page* 69]

line of aim! Proper position is proper balance, and without proper balance you'll never achieve billiard skill.

Bridge. **The bridge is the** position of the hand that supports the cue on the table. There are several bridges but the one you'll be using most often is the Orthodox. To make a proper one, close your left hand into a fist. Now open up your thumb and index finger so they form a "V" or an "L." Lay the cue on the thumb joint, where the thumb joins the hand. Wrap the index finger tightly over the cue shaft. Close the thumb across the first joint of the index finger. If your bridge is right it will support the weight of the cue as you hold the cue in the air. With the index finger and thumb still wrapped snugly around the cue shaft, extend your middle, ring and little fingers and place the heel of your hand firmly on the table. The cue is held as level as possible on all shots, the bridge hand being lowered for draw shots and raised for follow shots. It's important, too, that the distance between the tip of your cue and your bridge hand never exceed eight inches, unless you have to stretch far to reach the shot. The shorter the bridge, the better control over the stroke.

Stroke. The proper stroke in billiards depends on gripping the cue correctly—lightly, firmly—and on a good bridge, com-

bined with a balanced comfortable stance with the head *always* over the cue in the line of aim!

As you stroke, swinging your arm back and forth like a pendulum, your shoulder, elbow and wrist joints come into free and easy action, with your right, or cue, arm swinging close to the body. Address the shot with your bridge hand firmly on the table. Take three or four warm-up strokes, grooving your cue while you study the aim on the object ball and the point you must strike on the cue ball, also trying to gauge the speed and distance you have to drive the ball. When you feel that your stroke is grooved—then shoot. But shoot *through* rather than *at* the cue ball. This allows you to follow through on your stroke, the tip of your cue going on into the area occupied by the cue ball before it was struck.

Without this follow-through, you'll never achieve a good billiard stroke. In billiards the follow-through is just as important as it is in golf, baseball or bowling.

***To cue* your ball properly,** you have to chalk your cue correctly. Too many players are careless in this respect—jabbing the tip in chalk, drilling it as though they were trying to bore a hole. Others whirl the cue tip in the chalk while studying a shot. Both are bad practices, causing too much chalk to cake unevenly on the cue tip.

The best way to chalk your cue is to brush the tip with several light, sure strokes, spreading an even thick coat. Most importantly, chalk your cue lightly after every stroke.

Now we come to *the stroke* itself. It's been my experience, in a lifetime of billiard playing, that more than 85 per cent of the shots in pocket billiards can be accomplished by stroking the cue ball in the center of its vertical axis.

A good rule to remember in pocket billiards is to use center-ball stroking on every shot unless English is absolutely required for position or to make a shot that "is not on" without English.

A few words here about English. It's a necessary evil in pocket billiards. Complete mastery of the game depends to some extent on knowing how to use it but unless you understand its application, you can get into more trouble trying to use it than

[*Continued on next page*]

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without it. English means spin. If you strike the cue ball to the right of its vertical axis, the cue ball will spin to the left, or counter clockwise along the bed of the table. If you strike the cue ball to the left of its vertical axis, the cue ball travels with a clockwise spin, that is, spinning to the right. You can get all the English necessary in 99 per cent of your shots by striking the cue ball no more than a cue tip-width from the exact center of the ball.

Now we come to the draw and follow, the most useful instruments in pocket billiards. Control of the cue ball depends more on your ability to draw or follow than any other factor, with the exception of speed of stroke.

Follow is accomplished by striking the cue ball above center. Draw is achieved by striking the ball very low.

The end result of all these points, of course, is to hit the object ball and send it where you want it to go. The simplest way to determine the point of aim on the object ball is to imagine a straight line from the center of the pocket through the center of the object ball. The point where this line comes out on the other side of the object ball is the point of aim.

These are only the basics, of course. Master them, however, and you're on your way to being a good pocket billiards player. Practice. There's no substitute for it. I've been playing billiards since I entered my teens and I'm 45 years old now. Yet I still practice at least an hour a day.

For further billiard information—rules, diagrams showing how different games, such as pocket billiards, snooker and the like are set up, I recommend the Official Rule Book published by the Billiard Congress of America, 921 Edison Bldg., Toledo, Ohio. It costs $1. And my new book, of course, which should be available about the time you read this.

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How Your Brakes Work

[*Continued from page* 147]

veloped Center Plane brakes which use the return spring to anchor the shoes instead of conventional anchors. The shoes also float between two plates on the center plane of the lining. There is uniform pressure against the drums because the wheel cylinders are mounted in the same plane and thus provide equal force across the entire width of the lining.

Troubles in the hydraulic end of your brake system are not necessarily confined to leakage. Cleanliness is most important in keeping the system working. For example, never remove the filler cap of the master cylinder's reserve until you have first wiped it clean. Its little vent hole must be kept open. Smooth operation of the brake pedal's free travel (which is adjusted at the brake pedal rod) is important because it allows the piston of the master cylinder to return to its stop so that the bypass port will open up.

When checking the fluid level be careful that no dirt or foreign matter drops in. Some of the small cans of brake fluid have a ridge in which dirt can collect; wipe the top of these cans carefully before emptying their contents into the master cylinder.

It is not generally known that the hydraulic system draws in air during operation. To avoid possible damage by the moisture contained in this air use heavy-duty brake fluid which resists vaporization when the brakes heat during hard use on a hot day. Bear in mind that even a mere two per cent water content in the fluid will lower the latter's boiling point over 50°F. To be safe have the system bled and refilled once a year. The piston cups will also benefit from fresh fluid.

Many cars are handicapped with undersized brake cylinders and pistons. This can be offset by closer attention to such details as maintaining sufficient brake pedal free play and by using top-grade lining and keeping the engine in such efficient condition that it can be used more effectively for compression braking on downhill grades.

When working on your brakes don't make the mistake of fussing with the power system before checking the hydraulic system. Nine times out of ten there is

[*Continued on next page*]

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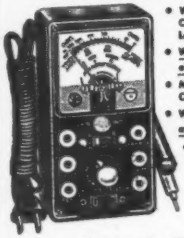

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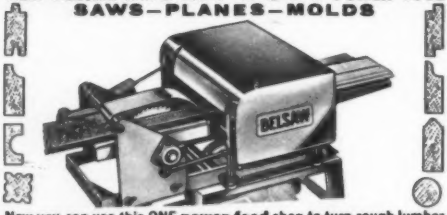

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How Your Brakes Work

[*Continued from preceding page*]

nothing wrong with the booster. This unit will usually operate well for a long time. If it gets troublesome it should be replaced. Check the power system by holding your foot lightly on the pedal while starting up the engine; you should be able to feel the pedal change to softer action. Care of the power system consists mainly of making sure all connections in the lines are tight.

Use your brakes intelligently. Prolonged use of the brakes on downgrades can result in "brake fade." Starting all downgrades 10 mph slower will go a long way toward keeping your brakes braking. Use the lower gears for "engine" braking.

If your brake linings become affected by dampness and tend to grab, try running the car down the driveway a few times in low gear and with the brakes lightly applied. This will "condition" them for a good day's service. And since dampness suggests wet-weather driving, remember that gentle application of the brake pedal will effect a reasonably smooth stop, while slamming on the brakes may very well result in a skid.

Two final points. Keep your tires up to snuff, for on a slippery road no brakes are any better than the traction between the tire treads and the road. Second, make sure the parking brake is adjusted to hold the car securely. This brake is completely mechanical and can be your ace in the hole if the hydraulic system fails. •

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Rabbit Hunting

[*Continued from page* 143]

tracks for a second, long enough for a shot.

How do you prepare rabbit for the table? There are many fine recipes but here's the way we do it at home. First skin the rabbit. Then cut him up in sections, wash and cover with cold salt water. Let the meat soak overnight in the refrigerator. When ready to cook, wash again. Parboil for 15 to 20 minutes in water to which baking soda has been added. Then drain and add fresh water, salt and pepper and stew till tender. Then take out of pan, dry and fry in butter till a golden brown. Make gravy and serve. You'll want seconds.

Happy hunting! •

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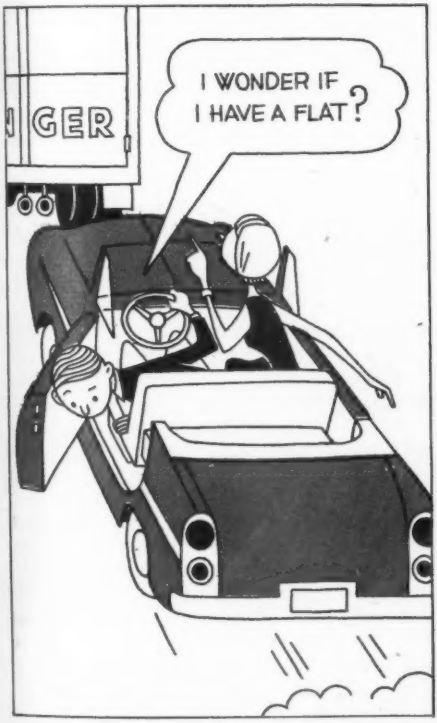

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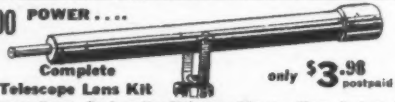

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Telescope Maker's Page

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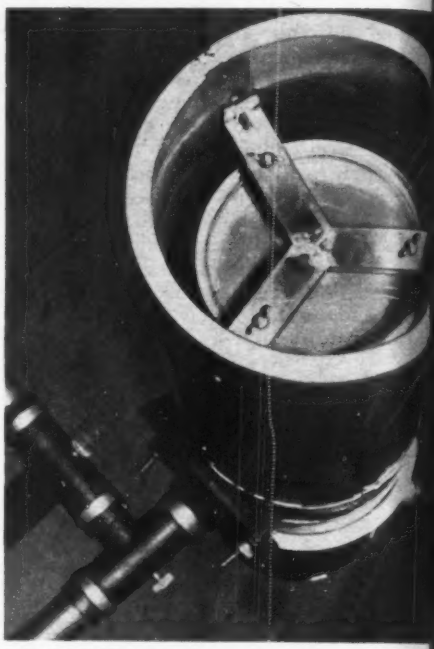

THREE DIAGONALS forming the cell for the mirror were silver-soldered at the center.

scope using the lathe, milling machine, drill press and hard soldering equipment. Class time for building each telescope was approximately 80 sessions of 1¼ hours each.

The six-inch mirrors were ground and polished by five boys at a time on stands constructed of ash cans loaded with steel scrap and concrete. The tool room was set aside as the figuring area. A Foucault tester locked in a fixed position facilitated figuring.

As the class progressed, various types of mountings were built and tested. To standardize the aluminum castings, a bronze mold was made for the tripod base and for the tube cradle. This procedure allowed the castings to be made in four afternoons. Each casting took about five minutes to make after the initial melting of aluminum. The machining of these parts was simplified by grinding a special tool to bore the

center mounting holes in one pass on the lathe. The other machining operations were made with the miller and drill press.

Each student made his own eyepiece mount and eyepiece. Some boys ground their own eyepiece lenses on a lens grinding machine and the others purchased them.

However, all the eyepieces were made in the shop with aluminum tubing and brass lens retainers threaded to fit the I.D. of the tube.

At the start of the course, a great deal of help and advice was given to Mr. Wechsler and the class by the Amateur Astronomers Club of the Hayden Planetarium. Various members of this group came to school and demonstrated grinding, polishing and figuring techniques.

Plans for building MI's Reflecting Telescope are available to our readers. To get started on this fascinating hobby, send $2 to Mechanix Illustrated Plans Service, Greenwich, Conn. Please ask for Plan No. P-6, Telescope. •

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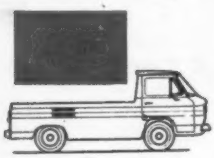
Dollar-saving performance starts with the engine—an air-cooled "pancake" 6 that never needs antifreeze or radiator repairs . . . and never stops whittling down fuel costs! And because of its rear-end position, the Corvair 95 power plant helps provide an extra measure of surging traction for grinding through the rough spots. Ideally suited for trouble-free truck duty, also, is the tough chassis build of Corvair 95, which includes frame and body designed as a rugged one-piece unit to withstand slam-bang runs. And there's 4-wheel independent suspension (first time in a U.S. truck!) to add new stability to truck performance and take the roughness out of road surfaces.

The list of Corvair 95 design advantages is as long as your arm. There's low loading height, for example; load space so accessible that the truck practically loads and unloads itself. There's exceptional driver comfort in the roomy cab. (With no hood projecting out in front, visibility has never been better.) And that snappy Corvair 95 styling is sure to spruce up any business. It's a wing-ding of a truck idea—available in pickup and van body versions. You can see 'em at your Chevrolet dealer's right now. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



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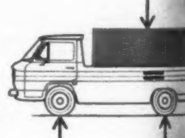
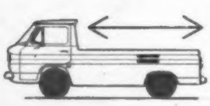


★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★



More load space, less road space! A Corvair 95, with 2 feet less overall length, eases into tight spots like no conventional half-tonner can. But Corvair 95's carry bigger cargoes—nearly two-thirds of the length is used for load space!

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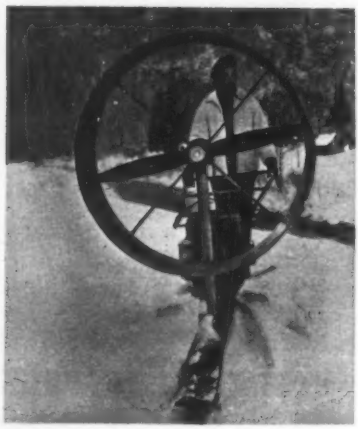

WHAT IS the young lady doing? She is skiing uphill, that's what! And that propeller-driven ski she's on is only one of the fascinating devices you'll find in next month's MI—all designed to get skiers uphill the painless way. Don't miss Now You Can Ski Uphill! in the January MI, on sale Dec. 22.

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DECEMBER, 1960

Volume 56, Number 12

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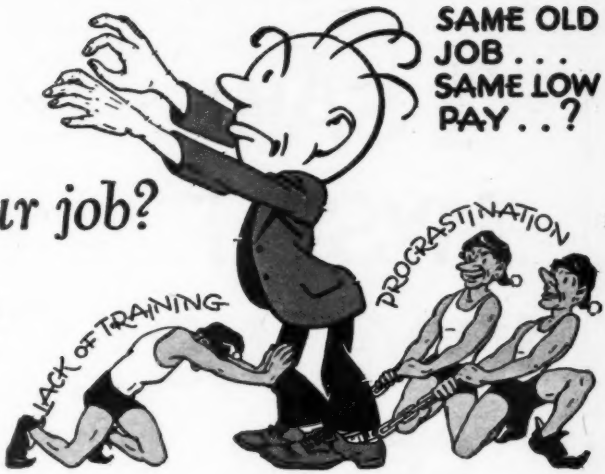

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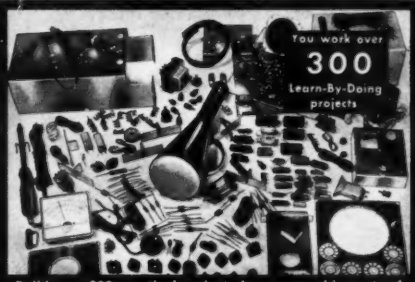

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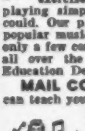

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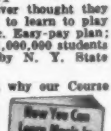

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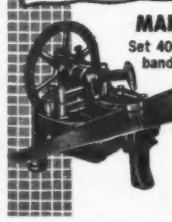

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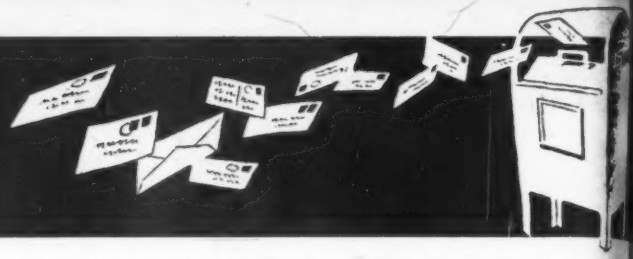

Address mail to: Letters Editor, MECHANIX ILLUSTRATED, 67 West 44th Street, New York 36, N. Y.

● *Shipshape Shelters*

We are told that the cost of providing protection against atomic attack on this country is so staggering that even our great rich country can't afford it, and that all we can do is wait patiently for the blow to fall.

If building new bomb shelters is so expensive, why not use those we have already built? I am thinking of idle ships that are in every river in this country, rusting away.

They would make perfect shelters. They are complete with everything needed to sustain the lives of great numbers of humans for long periods. They have water, lights, toilet facilities, cooking facilities, refrigeration and every other facility needed. All th t we would need to do is bury them in the ground and construct suitable entrances. If we can spend $60,000,000 for each atom sub we should be able to afford a few million to carry out a program such as this to save our people from destruction.

Elmer T. Gardner
Hampton, Va.

● *Way-Out Fish*

In the August 1960 issue of MI, Inventions Wanted, page 60: That fishing line footage gauge raises some questions. The reel is a spinning reel and it's a small one, too. How could the fish be 112 feet deep?

Homer S. Sewell, III
Altamonte Springs, Fla.

Even a small spinning reel can hold several hundred feet of monofilament line—and the fish need not be 112 feet down. More likely to be that far away from the boat.

● *Puzzler's Query*

I am disabled and a considerable part of my livelihood is made by constructing and selling puzzles. I would be happy and most grateful if any MI readers could give me data on a few more puzzles, especially those made of wire, but all kinds would be welcome. Many thanks for any help.

Russell E. Morris
P.O. Box 101
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● *Just For The Birds*

I read with interest your September article Operation Grouse, describing a small transmitter that can be attached to grouse to study their movements. Why not incorporate the transmitter in the wearing apparel of young summer camp hikers or others whose work or play takes them alone into desolate areas?

Peter Feller
North Arlington, N. J.

● *Rising Generation*

Have you got plans for those stilts the man prunes his fruit trees with (pg. 85, Oct. MI) as I am interested in having some. Do you think a boy of 11 could wear a pair? I would have many uses for them.

Gene Olson
Chicago, Ill.

We bet you would. We have no plans for the stilts but they seem simple enough to make from the photos if you have any metal-working know-how. We would not advise you

[Continued on page 12]

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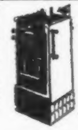

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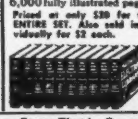

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Dear Editor

[Continued from page 10]

to try these stilts until you have mastered the simple old-fashioned kind—two poles with strong wooden footrests screwed to them. The footrests can be set low on the poles at first and moved up as you get better at stilt walking. Someone in your neighborhood will know how to make and use simple stilts as they were once as common as tops, hoops and marbles.

● *Underwater Accents*

I have been told that fish have voices. Is this true, or are they pulling my leg?

E. E. Farr
Dallas, Texas

Not only do fish have voices but fish of the same species but from different sections make different sounds. At the University of Texas they have found a marked difference between the mating calls of red horse shiners from the Colorado River and those from another stream 100 miles away. Red horse shiners are a species of carp.

● *Peeling An Eel*

How do you peel an eel? My boys keep catching them and I'm supposed to cook them. But I don't think they skin them right.

Mary Fitzgerald
Bronx, N. Y.

There are several ways, all handy to know. One is to fasten the head somehow, cut the skin all the way around behind the head, take the edge of the skin with a pair of pliers and pull it off like a stocking. Another is to cover the eel with sand, for a grip, take it in both hands and "wring" the skin off. Another is to cut the unskinned eel into short sections and parboil them; then the skin comes off easily for frying. Eels should be parboiled for frying anyway.

[Continued on page 14]

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As an electrical trouble shooter the Model 70:

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- Will test *all* TV tubes for open filaments, inter-element shorts, burned out tubes, etc.
- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, Leakage, etc.
- Will measure current consumption *while the appliance under test is in operation.*
- Incorporates a sensitive direct-reading resistance range which will measure all resistances commonly used in electrical appliances, motors, etc.
- Leakage detecting circuit will indicate continuity from zero ohms to 5 megohms (5,000,000 ohms).

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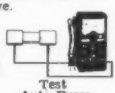
With tester's cord in outlet, current consumption of appliance is read direct on meter when line cord is connected to receptacle on panel. This typical iron takes 7 amperes (Good).

Small electric fan motor indicates 50 ohms (normal resistance).

Control circuits of most furnaces use 24 volts obtained from step-down transformer. Here's how to check room thermostat to see if wires to it are alive.

Manual supplied with Model 70 shows meter needle should move to right when test leads are connected to pins 3 and 4 of this 6AU6 tube. Procedure for testing all tubes used in TV are detailed in manual.

Test Generators



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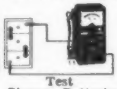
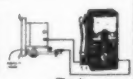


Test Storage Batteries



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• How to test all TV tubes; also simple procedure for determining which specific tube (or tubes) is causing the trouble.

• How to trace trouble in the electrical circuits and parts in automobiles and trucks.

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Dear Editor

[*Continued from page* 12]

• *Cheaper Flytrap*

I read the letter about Venus Flytraps you had in your Sept. 1960 issue and would like to inform the sender that he can purchase bulbs at a much cheaper price than you listed in your reply. Two bulbs may be bought in many dime stores for 79 cents. They come in a plastic bag along with a small amount of planting medium. They are packaged by the Clinton Nurseries of Clinton, Conn.

David Wainwright
Alta Vista, Kan.

Vitamin A Maintains Taste

Experiments at the Long Island Jewish Hospital have revealed that vitamin A maintains the sense of taste. The Nutrition Foundation reports that laboratory animals deprived of the vitamin were unable to distinguish between regular tap water and ultra-sour quinine water. Chief sources of the vitamin are milk, egg yolk, yellow fruits and the yellow and dark green vegetables.

'Chutes To Be Used Underwater

The familiar parachute will take to the sea to aid oceanographers in observing ocean currents in a new project of the U. S. Coast and Geodetic Survey. The parachutes will be submerged in several areas about 50 miles offshore. Suspended at depths of approximately 16 and 1,000 feet, the big parachutes will be secured by line to surface floats and allowed to drift with the current. Careful tracking of the floats for a period of 48 hours will provide significant data on direction and speed of deep submarine currents.

Army Develops "Laughing Gas" Unit

A portable "laughing gas" generator for use by medical units under combat conditions has been developed by the U. S. Army Engineer Research and Development Laboratories. It is capable of producing 40 pounds an hour of liquid nitrous oxide, an anesthetic agent commonly called "laughing gas." The comparatively light weight plant will enable the Army to minimize, if not eliminate, the necessity of shipping returnable cylinders of compressed gas to and from various theaters of operation. It consists of two skid-mounted units that can be carried by truck, train or plane.

NOW SEE THIS!

WORLD'S largest umbrella, according to its makers, Aeroaffiliates, Inc., of Ft. Worth, Texas, is designed for use on auto lots, at beach, drive-in parking areas, etc. Texas-style rain shedder operates like a conventional umbrella, is made with rust-proof, anodized aluminum and covered with weatherproof, vinyl-coated nylon. It is 26 feet in diameter, 15 feet high in center. Canopy edge is ten feet off ground. Umbrella weighs 160 pounds.

WORLD'S smallest production transistorized radio is the Micro-Ceiver which weighs less than an ounce with its batteries. The four-transistor receiver fits in either ear and has an encircling wire loop. Two one-inch batteries play up to 100 hours, cost only 15 cents a pair. Tuning range is about 15 miles; capacity is four to six stations, depending upon the locale. From Micro-Ceiver, Englewood, N. J. $19.95.

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Aid For Inventors

It is not generally known that many helpful pamphlets are available to the inventor at little or no cost. Some of these are summarized here.

General Information Concerning Patents is the title of a free 36-page pamphlet from the Patent Office, U. S. Department of Commerce, Washington 25, D. C. This booklet tells you what a patent is and clarifies the difference between patents, copyrights and trademarks. Briefly, it specifies what can be patented and what is meant by novelty. It declares that a patent cannot be obtained "if the invention has been described in a printed publication anywhere, or has been in public use or on sale in this country, more than one year before the date on which an application is filed in this country." This rule holds whether the printed publication or public use was by the inventor himself or someone else.

Here is one point which readers of this department should note—"The substitution of one material for another, or change in size, ordinarily are not patentable."

INVENTOR'S TIP OF THE MONTH

While hundreds of patents have been issued for devices to prevent cars from being stolen, auto thefts continue to rise. The inventor who can devise a practical theft-proof gadget for automobiles will be certain of a good market. However, avoid ignition controls or horn blasts. The former can be jumped easily and the latter can be disconnected.

Patent Drawings

There are rules, too, about the standards for drawings. For complete details on how to make patent drawings, the Superintendent of Documents, U. S. Government Printing Office, will send Guide For Patent Draftsmen. Price is 15 cents. This contains some 12 sample pages of illustrations and four pages of symbols, including notes on shading.

A patentee is required to mark articles "Patent" and give the number. It is pointed out that although the terms "Patent applied for" or "Patent Pending" have no legal effect, one cannot use these terms falsely. Also it is against the law to mark something Patented if the actual grant of the patent has not been made. What the patentee may do about infringement also is outlined.

The manner of preparing parts of application for patent and other papers is given in Rules Of Practice Of The United States Patent Office In Patent Cases. However, at the time this article was prepared Rules Of Practice was out of print. Its cost is 50 cents. Order it from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

An Information Aid

A companion piece to the previous publications, obtainable from the same source, is Patents And Inventions, An Information Aid For Inventors, 15 cents. Five of the 26 pages are devoted to a question and answer treatment.

Here you will find the answer to how you can be sure your attorney or agent will not reveal the secrets of your invention to others. You also will learn that the Patent Office will not give you advice as to whether you should

apply for a patent nor evaluate your invention.

Trademarks

A paragraph in General Information Concerning Patents covers trademarks. It says in part, "Trademark Rights will prevent others from using the same name on the same goods, but do not prevent others from making the same goods without using the trademark."

Also free from the Patent Office is the General Information Concerning Trademarks booklet.

Trademark Laws are given in a 20-cent booklet—Trademark Rules Of Practice is 30 cents. Both are available from the Superintendent of Documents.

Copyrights

A copyright protects the writings of an author against copying. You could copyright a description of a machine. But this "would not prevent others from writing a description of their own or from making and using the machine."

Details about copyrights are given in the Copyright Law Of The United States Of America, Bulletin No. 14. Write to the Copyright Office, The Library of Congress, Washington 25, D. C. Price is 25 cents.

Another excellent booklet is The Story Of The U. S. Patent Office, 25 cents. Here you may be surprised to learn that on March 7, 1876 Alexander Graham Bell received a patent on "telegraphy" for what is now the telephone. You are informed that the greatest decade of invention began in 1880. During the next 10 years, the trolley car, incandescent light, automobile, cash register, dynamo, pneumatic tube, smokeless powder, transparent film, electric welding, cyanide process, steam turbine, and electric furnace were all invented.

You will discover, too, that between 1809 and 1900, one of every 1,000 patents was issued to a woman inventor. Patent No. 1,000,000 was issued on August 8, 1911; Patent No. 2,000,000 was issued on April 30, 1935; the largest patent was issued on December 7, 1937 containing 170 sheets of drawings and 146 pages of specifications. Patent No. 2,500,000 was granted March 7, 1950, and that by the end of June, 1955, the average time between filing and issuance of a patent was three and one-half years.

Note that this 25-cent book was published five years ago. The last date in its 42 pages is December 31, 1955.

[*Continued on page* 19]

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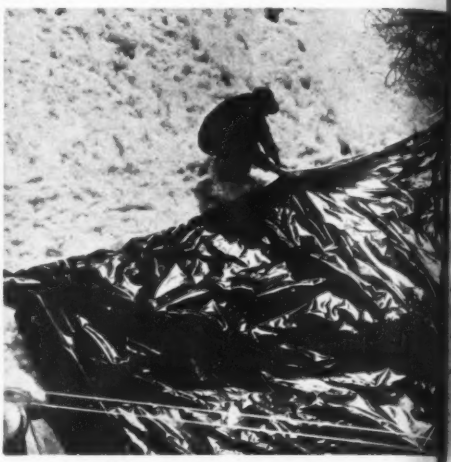

SNOW will melt faster around the house if you spread a sheet of heat-absorbing black plastic over the area when the sun appears.

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Invention Clinic

[Continued from page 17]

Wheel-Type Valve Wrench

Ted Sobow of Lancaster, N. Y., is interested in doing something about a wheel-type valve wrench. How can he learn whether or not he is duplicating the work of others or infringing on a patent?

I suggest that you submit an understandable sketch to a patent attorney and ask him for a report on a search. This should clear up your infringement worries. Patenting cost will depend on the number of drawings, the amount of work your attorney may be required to do and the price he feels he can get. •

Salvage Ancient Treasure Ship

When workmen salvage a cargo of bronze implements and ox-hide-shaped copper ingots from a ship sunk 1,450 years before the birth of Christ, they will be taking part in what is reported to be the first scientifically organized exploration of an ancient wreck. The ship was evidently on its way from the mines of Cyprus. The ingots, some bearing stamped impressions, served as the currency of that time. The wreck was found along with 46 other ancient wrecks off the southwestern coast of Turkey. Expert divers, photographers, and underwater draftsmen will participate in the exploration.

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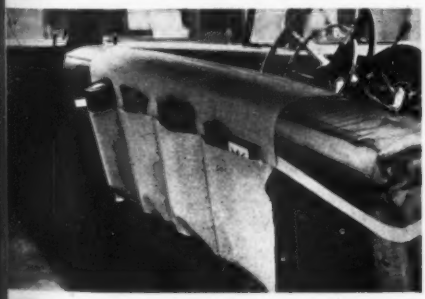

Homemade plastic pocket apron is held in place behind the front seat by two strips of wide elastic. It holds items that otherwise might obstruct view through the rear window.

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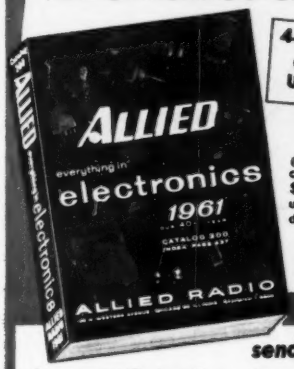

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REMINGTON'S new razor, the Lektronic, runs off a small storage battery, can be used for more than two weeks without charging. Charger plugs into any 90 to 250-volt AC line.

Road Warns Of Dangers

A one-mile strip of county road that warns drivers of approaching danger is being tested north of Richmond, Calif. The road has a rock and plastic "rumble strip" system placed ahead of danger spots. The strips send sound and vibration warnings through automobile frames. The Contra Costa County Public Works Department and the California Research Corp. are making the tests to see whether motorists will slow down when they hear and feel the signals. At one 90-degree turn in the road, an average of seven major accidents per year occurred before the strips were installed.

Lightships To Be Replaced

Lightships will soon be replaced by fixed offshore lighthouses, the U. S. Coast Guard has announced. A long range program will eliminate 22 of the remaining 24 picturesque lightship sites. Completion of the first new navigation aid, to be at the southern approach to the Cape Cod Canal off the Massachusetts coast, is anticipated by the end of 1961 or early in 1962. Lighthouses are cheaper and will provide a greater luminous range than lightships.

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Navy Warns Skin Divers

A device which saved many sailors—the Momsen Lung—may mean death for skin divers and swimmers, the Navy has warned. Used by the Navy in escape from submarines until 1956, the device definitely was not designed for diving, the Navy said. Use of the lung in swimming and especially as a breathing apparatus for skin diving can cause death from lack of oxygen, rupture of the lungs, carbon dioxide poisoning or drowning. Some of the devices have been sold through surplus outlets. Navy officials urge that all of them be destroyed or turned over to the Navy.

Whither The Bat?

A University of Illinois zoologist will try to unlock the mystery of what happens to the 200,000 bats that disappear every year in southern Indiana and northern Kentucky. John S. Hall, who has studied the Indiana cave bat *Myotis sodalis* for the past three years, is still baffled by the mystery of where the females go during the summer to bear and rear their young. During the winter the bats hibernate in caves, hanging to the roof and walls in clusters of as many as 10,000. In mid-March and April the pregnant females leave—and disappear.

WINDSHIELD GUARD

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CRAWLING FOOD

AN afternoon bridge party was interrupted in Cleveland recently when the hostess was called to the phone. During her absence one of her guests found on the mantle a new box of odd-looking candy. She sampled a piece. Chocolate covered, it was deliciously sweet, slightly crunchy, with a taste somewhere between pecan and French-fried shrimp. The other two women also found the snacks interestingly different.

When the hostess returned she was horror-struck. "You're eating those? Ray sent them from Los Angeles. They're chocolate-covered caterpillars!" The bridge party was over.

Odd as it seems, the "spooky-food" industry is doing a quarter-million-dollar business here every year. In nearly every large U. S. city gourmet shops are stocking such delicacies as fried silkworms, chocolate-covered ants, baby bees and fried butterfly cocoons.

Actually, according to those few who can retain their objectivity, insect-eating isn't as shocking as it might seem. In fact, Americans eat insects in one form or another almost every day. Says Dr. C. H. Curran, former Curator of Insects and Spiders, American Museum of Natural History: "Few of our foods do not contain insects in a more or less recognizable form." Home-grown lettuce more often than not swarms with plant lice. Spinach and leafy vegetables often are laden with fly larvae. In many parts of the U.S. nobody minds if honey contains bee's eggs.

People of many non-English-speaking countries consume insects as a matter of course. Africans find pleasure in crunching live termites, and when a locust plague strikes, they believe their gods are sending them food. The Japanese have a fool-proof medicine for coughs: baked dragonfly. Other favorite cures: mantises for kidney trouble and locusts for beri-beri.

The U.S. armed forces state that insects are just fine for you—if it's a matter of survival. General Curtis LeMay suggests that in a pinch one might try grasshoppers and butterflies (minus wings and legs), ants and ant eggs, and wood grubs from rotten logs.

Anything that creeps, crawls, runs or flies qualifies for emergency food, according to the Air Force. The Navy helps with these cooking instructions: "Grubs should be boiled or fried but can be eaten raw. They are quite palatable and have a flavor somewhat like that of oysters. Grasshoppers and cicadas may be toasted on the end of a stick."

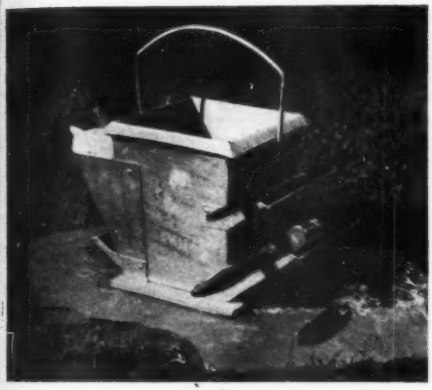
The Navy adds a warning, however: "Be cautious of eating caterpillars, as many are irritating." We shall!— *Robert Gannon*

PATENTS GRANTED

GOOD news for vidiots! Arnold M. Steffen of Woodland Hills, Calif., won patent 2,951,918 for an electrically operated device which allows a viewer to pre-set his TV for an entire evening of programs.

A new type of coating for packaged foods got patent 2,951,763 for Harold C. Kelly and James R. Wirt of Midland, Mich. The coatings, especially suitable for meats, are applied in molten form and are said to be impervious to oils from meats and safe, flexible, tough, transparent and easy to remove.

A unique paint pail devised by Minnie K. Cole and Garth A. Showers of Tannersville, N. Y., was awarded design patent 182,857. The rectangular pail has straight sides and sharp



corners to provide wiping surfaces. It is lined with disposable wax paper and has bins and trays on its sides for brushes. Photo above.

Ole Grisvold of St. Paul, Minn. was given patent 2,951,012 for a new skin application said to "alleviate and cure irritations caused to the skin by poison ivy, poison oak, poison sumac, and other related chemical toxicants."

No getting ashes on the rug with the flip-top cigarette box with a built-in ash receptacle. This smoker's invention took patent 2,944,555 for Clyde A., Richard O., and Donald G. Peel of Spring Lake, Mich.

Snowball fighting has gone modern. A toy snowball maker and launcher which won patent 2,948,275 for R. D. Smith of Iroquois, Ontario, Canada, has a wide bore with a spring, a cup-shaped plunger and triggering device. If snow is placed in the plunger before the piece is cocked, cocking squeezes the snow into a ball. It is then launched and—whammo! •

The Amazing Potentialities of Memory

A LITTLE thought when I arrived at my friend Borg's house that I was about to see something truly extraordinary, and to increase my mental powers tenfold.

He had asked me to come to Stockholm to lecture to the Swedes about Lister and other British scientists. On the evening of my arrival, after the champagne, our conversation turned naturally to the problems of public speaking and to the great labour imposed on us lecturers by the need to be word perfect in our lectures. Borg then told me that his power of memory would probably amaze me—and I had known him, while we were studying law together in Paris, to have the most deplorable memory!

So he went to the end of the dining-room and asked me to write down a hundred three-figure numbers, calling each one out in a clear voice. When I had filled the edge of an old newspaper with figures, *Borg repeated them to me in the order in which I had written them down and then in reverse order, that is beginning with the last numbers. He also allowed me to ask him the relative position of different numbers: for example, which was the 24th, the 72nd, and the 38th, and I noticed that he replied to all my questions at once and without effort, as if the figures which I had written on the paper had been also written in his brain.*

I was dumbfounded by such a feat and sought in vain for the trick which enabled him to achieve it. My friend then said: "The thing you have just seen and which seems so remarkable is, in fact, quite simple. Everybody has a memory good enough to do the same, but few indeed can use this wonderful faculty."

He then revealed to me how I could achieve a similar feat of memory, and I at once mastered the secret—without mistakes and without effort—as you, too, will master it tomorrow.

But I did not stop at the amusing experiments. I applied the principles I had learned in my daily work. I could now remember, with unbelievable facility, the lectures I heard and those which I gave myself, the names of people I met—even if it was only once—as well as their addresses, and a thousand other details which were most useful to me. *Finally, I discovered after a while, that not only had my memory improved, but that I had also acquired greater powers—of concentration; a surer judgement—which is by no means surprising since the keenness of our intellect is primarily dependent on the number and variety of the things we remember.*

If you would like to share this experience and to possess those mental powers which are still our best chance of success in life, ask J. O. Borg to send you his interesting booklet *The Eternal Laws of Success*—he will send it free to anyone who wants to improve his memory. Here is the address:

J. O. Borg, c/o Aubanel Publishers, 14 Highfield Road, Rathgar, Dublin, Ireland.

Write now—while copies of this booklet are still available. (Postage 5c for a postcard to Ireland by surface Mail).

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Engineers have an experimental oven that a housewife can turn on and off by dialing her home telephone number and then the code for her oven.

Tests have shown that a deep-freeze method of preserving human blood for four years has been proved safe and reliable.

Farmers consume 6,500,000 tons of steel annually—nearly half as much as the entire automotive industry.

A British study revealed that in one area, owls killed 23,980 rodents each year per square mile.

Death rates from major lung ailments, including lung cancer, were 700 per cent higher in 1900 than they are today.

The cooking of raw garbage before it is fed to hogs is now required by law or regulation in all 50 states.

While the tides are caused by the gravitational effects of the moon and sun, currents are mainly due to winds which cause surface flow.

There are about 925 radio receivers per 1,000 people in the U. S.

One can tell the difference between black crappies and white by counting the stiff spines in the upper fin—seven or eight means black; five or six white.

The United Kingdom leads the world in newspaper circulation with an estimated 573 per 1,000 inhabitants, followed by Sweden with 462 per 1,000.

The average American eats about 1,5[illegible] pounds of food a year.

There may be a measurable relationship between water temperature and shark irritability.

Ants are capable of lifting weights equivalent to man hoisting four tons, while beetles can lift loads 850 times their own weight.

Fungus diseases cause greater losses in American forests than either fires or insects.

During the summer season in Antarctica temperatures range from minus 90° F. to slightly above zero, with wind gusts up to 70 mph on the flat ice expanse.

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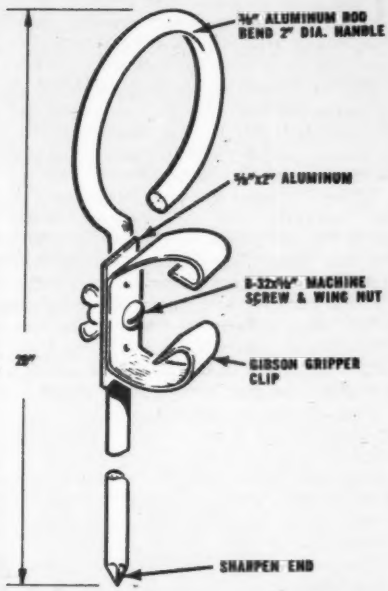
HOSE HOLDER



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Here's a lawn sprinkler device that you can approach without having to turn off the water. A wing nut permits the nozzle to be adjusted to any angle and the gadget can be rotated a full 360° with a flick of the wrist. A glance at the above drawing will show you how to shape and assemble the parts for this simple but handy gardening aid. •

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THE fastest man in the world is Joseph A. Walker, National Aeronautics and Space Administration test pilot who recently jockeyed the X-15 at 2,196 mph.

The quickest round-the-world flight via airplane was made by Milton Reynolds of San Francisco, Calif. Flying from San Francisco to San Francisco, Reynolds did it in 51 hours, 45 minutes and 22 seconds.

When it comes to running the mile, no one has outdone the light-of-heel Australian, Herb Elliott, who's in the books with 3:54.5 for the distance. Walking-across-the-U. S. champions are two Britishers, RAF Sergeant Patrick Molony and Army Sergeant Mervyn Evans who hiked the 3,022 miles from San Francisco's Golden Gate Bridge to New York City's Coliseum in 66 days, four hours and 17 minutes. The pair averaged 46 miles a day.

The champ at bashing a table tennis ball is New York City's Marty Reisman. The hard-hitting athlete's drives were clocked electronically at 110 mph. On the tennis court, professional world champion Pancho Gonzales' serve smashes off his racquet at a sizzling 120 mph.

Underwater, the U. S. Navy's atomic-powered submarine, Skipjack, is the most rapid with a speed in excess of 20 knots.

In the realm of automobiles the 394.2 mph recorded by Englishman John Cobb at Utah's Bonneville Salt Flats in 1947 is still the standard to beat. The fastest run at Indianapolis Motor Speedway was set this year when Jim Rathmann of Miami, Fla., shattered the course with a torrid 138.357-mph average for the 500-mile grind.

Jess Thomas is the swiftest motorcycle man with a 214-mph record over a measured mile at Bonneville Salt Flats.

When it comes to hurling a baseball the 60-feet, six-inch distance from the pitcher's mound to the plate, Cleveland's now retired Bobby Feller is the ace. Rapid Robert fired a baseball for science at a scorching 98.6 mph.

Sugar Ray Robinson is the fastest man with a punch. The quick-handed Robinson's wallop was electronically timed at a thumping 35 mph.

The fastest knockout occurred when Al Couture hung a lightning bolt on the chin of Ralph Walton at ten and one-half seconds of the first round.

We don't know who the principals were but the fastest time for the three-legged race over a 100-yard distance is 11 seconds. This long-standing record was established back in 1909. • —*J. Robert Connor*

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THUNDERBOLT build-it-yourself sports car is a new product of Tornado Cars, Ltd., Rickmansworth, Hertfordshire, England. The recommended power unit for the kit is the Triumph TR-3, a 100 hp job. Car has a 15-gallon tank, giving it a 550-mile range. All running components are based on Ford parts—a great convenience. Ford Consul motor can be used for power, too.

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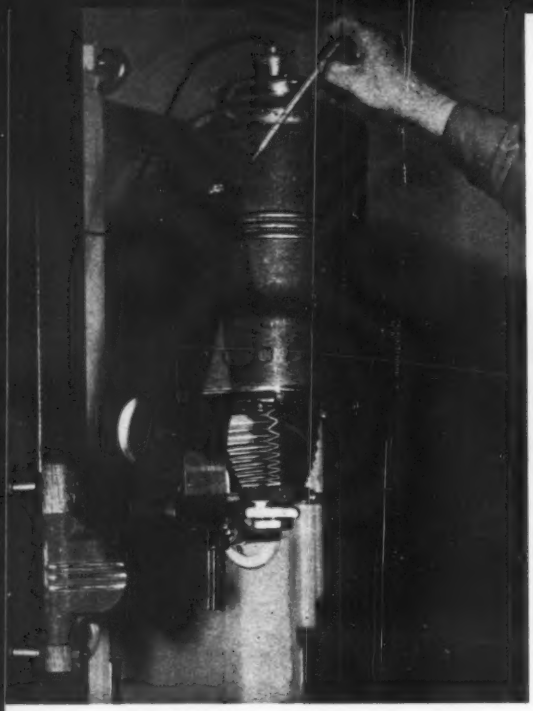
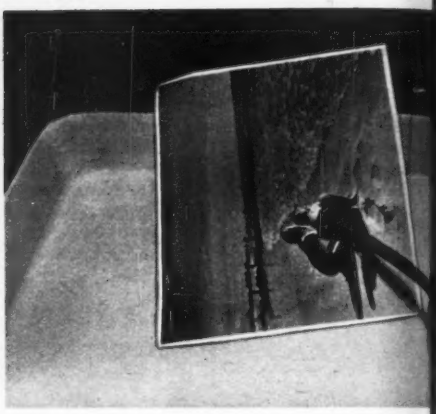
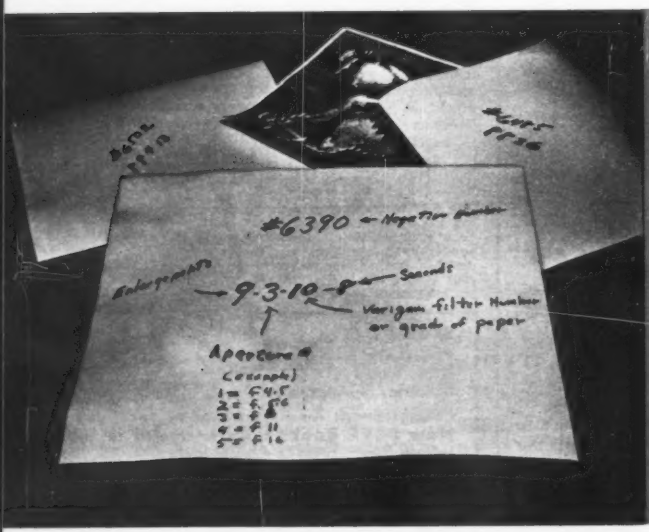


ALNICO MAGNET is handy for holding the free end of the negative strip out of the way when you're enlarging from roll film.



UNDEREXPOSED area in a print is easily brought out by applying concentrated developer with sponge tied around a stick.



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A ONE-EYED, swimming robot that has powerful claw-like pincers for hunting and retrieving objects lost in the ocean at depths up to 2,000 feet is being developed by Vitro Laboratories, Silver Spring, Md. Solaris, as the robot is called, will use its TV eye for spotting objects on the ocean floor.

Fresh water from the sea may soon be available at low cost by means of nuclear energy, as a result of a joint effort of the Saline Water Division of the Department of the Interior and the Atomic Energy Commission. The tentative site for the nuclear desalination plant is San Diego, Calif.

Citrus trees may soon be protected from frost by being put into a state of temporary dormancy by a growth-regulating chemical called MH-30 being developed by the U.S. Rubber Co.

Two planes will be equipped to transmit TV signals to a six-state area early in 1961 for the world's first airborne educational TV system. Westinghouse will supply the equipment for the flying telecasts to Illinois, Indiana, Kentucky, Ohio, Michigan and Wisconsin.

A new telescope that will give, for the first time, exact positions of stars in the southern one-third of the sky will be built in the Southern Hemisphere with a $750,000 Ford Foundation grant. The stellar camera will be operated jointly by Yale and Columbia Universities.

Man may one day build a self-reproducing, self-improving computer machine whose descendents might even be smarter than the man who dreamed it up, according to Prof. John Myhill of Stanford University. The math professor said a self-improving series of machines would have builder, instructor and computer components which would enable it to produce a better version of itself.

Giant, pop-up balloons may be the solution to the re-entry problems of space vehicles, according to Goodyear Aircraft Corp. The balloons are designed to stabilize and slow down nose cones and manned capsules as they re-enter the upper atmosphere to prevent the atmosphere from burning them up.

Here are some of the miracles of science you'll be seeing soon.

A new method whereby the position of an aircraft can be pinpointed with "near perfect" accuracy is under development by the British. Use is made of the pilot's voice communications which are picked up by three stations on the ground. The stations determine the plane's position by triangulation.

The University of California is developing a poster and film strip method of teaching Spanish under a $132,000 federal grant. Dr. William E. Bull, professor of Spanish, is developing 500 poster-size drawings to be used as aids in teaching Spanish. When completed in about a year, the pictures—also produced in strip form—will be made available to elementary and secondary schools and colleges.

Cows which eat hothouse crops grown in nutrient chemical solutions rather than soil, produce milk with reduced radioactive fallout content, according to Dr. Robert H. Fetner and Randall W. Carter of the Georgia Institute of Technology. This might be the answer to contaminated milk in the event of heavy radioactive fallout.

A newly developed vaccine may prevent trachoma, according to U.S. Navy researchers stationed at Taipei on the Island of Formosa. The vaccine has produced significant immunity in both humans and monkeys.

Nuclear explosions may be used to mine sulfur in the Gulf of Mexico, according to John M. Dales and Roger C. DeHart of the Southwest Research Institute in San Antonio, Texas, who say that nuclear mining would be cheaper than methods currently in use.

Space travelers may work best and sleep better if they discard the 24-hour day of earth and establish longer rhythms for their lives, according to Dr. Nathaniel Kleitman of the physiology department at the University of Chicago.

Attempts to teach an electronic "brain" how to tell one vowel sound from another are being made at Bell Telephone Laboratories. Bell scientist, Dr. J. D. Foulkes, said the work was part of a continuing effort to make machines that can hear, "understand" and act on spoken commands.

—J. Robert Connor

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USED AND new watches $2 up. Free List. Southern Watches, 5-M South Wabash, Chicago 3, Ill.

Million-Dollar Reactor

A new million-dollar nuclear reactor to test the effects of radiation on military equipment will be installed next year in the Forest Glen section of Walter Reed Army Medical Center. It will produce intense, self-limiting pulses of nuclear radiation to which samples will be exposed for short periods at repeated intervals. General Dynamics' General Atomic Division of San Diego, Calif., will design and construct both the reactor and associated test facilities.

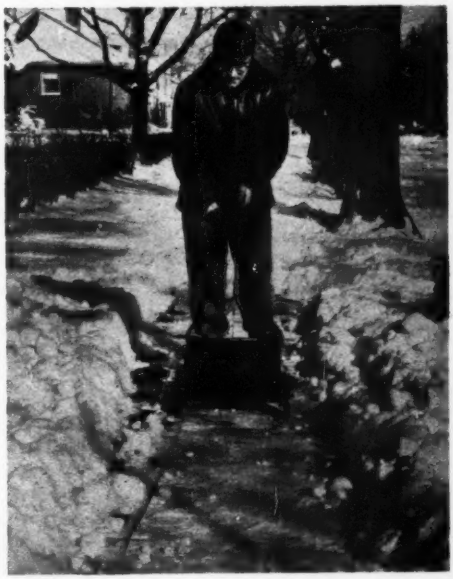
Nuclear Altimeter Being Developed

A nuclear altimeter is now being developed for the U. S. Army Ordnance Corps by Tracerlab of Waltham, Mass. It will differ from a conventional altimeter in that it will use nuclear "beta back-scatter" techniques for altitude sensing. These techniques are now used to measure the thickness of material and for process control in industry. In its airborne role, "beta back-scatter" will be used to sense atmospheric density at varying heights above the earth's surface. Because atmospheric density is related to height, the instrument will be able to give direct, accurate indications of altitude.

Moving Sidewalks To Be Installed

Heart-taxing climbs up four steep blocks in the business district of Tacoma, Wash., will soon be ended by moving sidewalks. The conveyors will be installed in lighted tunnels through existing buildings and in a covered area-way where existing buildings are being demolished.

SAND SPREADER



A SIMPLE WAY to scatter sand or calcium chloride for slip-proofing icy pavements is to use a fertilizer and lawn seed spreader.

An empty egg carton can still serve to store lemons in the refrigerator.

Again, Choice of the Newest!

Spark plugs are selected for new-car installation only after exhaustive tests covering hundreds of thousands of hours. Tests range from heat conductivity of the insulator design to fouling and pre-ignition. Because AC Fire-Rings were best in these laboratory and road tests, they were selected for original equipment on the 1961 Buick Special, Oldsmobile F-85, Pontiac Tempest and Chevrolet Corvair. That's why ACs are on more new cars than any other brand. Best for replacement, too.

They must be the best!

AC Fire-Ring Spark Plugs

AC SPARK PLUG
THE ELECTRONICS DIVISION
OF GENERAL MOTORS

MAIL FOR McCAHILL

UNCLE TOM ANSWERS HIS MOST INTERESTING LETTERS IN THIS COLUMN. WRITE TO HIM AT *MECHANIX ILLUSTRATED*, 67 WEST 44TH ST., NEW YORK 36, N. Y.

● *Is it true that Henry Ford was president of the Cadillac Motor Co. when they made their first V8, and did he help design it?*

Denis Bateman
Victoria, Australia

At Cadillac they *still* don't know who Henry Ford was. To answer your question specifically, he never had anything to do with Cadillac.

● *I desire to know what my automobile can do at top speed.*

Thomas B. King
Menlo Park, Calif.

Kill you, in the first place.

● *This is rather an unusual request but for quite a long while we have been reading* MECHANIX ILLUSTRATED. *We have read all your columns and in most cases you seem to help people with troubles or those who are in doubt. We have been trying to find some pen-pals in the U. S. A. My mate and I would be much obliged if you could help us by printing our address. We would, of course, like female pen-pals. We are both 22 years of age.*

461 SAC Nailus
413 SAC James
Signals (PBX) R.A.F. Gaydon,
Leamington Spa, Warwickshire, England

Come on, female pen-pals.

● *Why people are so rude to you about your looks, I don't know. I think you have a very nice face and a very nice general all-round appearance.*

Heather Brickhill
Blairgowie, Johannesburg
South Africa

That "all-round" appearance is what most people find fault with—but thanks anyway.

● *Years ago when a man wanted to buy a sporty automobile, he could ask for a high-speed demonstration and get it, even in New York City. I remember once a dealer took me to the Long Island Motor Speedway (I believe then known as the Vanderbilt Speedway) to show me how fast a Marmon could go. It was common practice in those days and I was reminded of it recently when I asked for a demonstration on a new car and was taken for about a four-block ride in heavy city traffic. What I want to know is: Are there any companies left that'll give a man a full performance demonstration in order to help him make up his mind?*

Arthur R. Armstrong
Pittsburgh, Pa.

Today the demonstration part of selling is left to the dealer's decision. Most all dealers know that the majority of people asking for demonstrations today are only shoppers, with no serious intention of buying. Some ask for demonstrations just to get a ride and pass the time of day. There is very little mystery left about automobile performance and the dealers are reluctant to bang up their equipment on the off-chance of convincing a buyer. This may or may not cost them sales. Incidentally, years ago I did a lot of demonstration driving for Marmon on the old Vanderbilt Speedway—perhaps you were one of my passengers. I'll never forget the time I blew up an engine ten miles from the nearest town in a spot where hours passed before another car would go by. We lost that sale.

● *In your May issue Edgar T. Crane of Boston wrote of having his bumper pulled out of shape from a tow after his car got stuck in his driveway. He says he understands that all makes of American cars have the fault of no place to hook on a tow chain. This is not a fault of the Rambler. I've had two of them and each had hooks at front and rear just back of the bumpers. My dealer told me that these are the hooks used to tie the car down during transport. The dealer leaves them on unless the customer wants them removed. So,*

[*Continued on page* 48]

THE HOT TOPIC IS THE NEW TEMPEST!

HORSEPOWER THAT MAKES SENSE FOUR CYLINDERS TO SAVE GAS! THE NEW SWEET RUNNING TROPHY 4 ENGINE FROM PONTIAC PERFORMANCE SPECIALISTS!

The new Trophy 4 engine puts real performance in the Tempest and cuts gasoline bills to boot. This new baby is ***eager to move out*** for safe passing. Holds the going pace on any expressway. Breezes up steep hills in high gear. This new 195 cubic inch displacement, 45° inclined, short stroke, 4 cylinder engine has a wide range of h.p. ratings. With single-barrel carburetor and stick shift: 110 h.p. (regular gas) or 120 h.p. (premium gas). With the same carburetor and extra cost automatic shift: 130 h.p. (regular gas) or 140 h.p. (premium gas). Want still more? Order the 4-barrel carburetor with the automatic and get ***155 h.p.*** (Or buy the 155 h.p. aluminum V-8 option.)

PERFECT ▲ BALANCE

Rear axle drive and transmission are combined (a trans-axle). Flexible shaft from front engine delivers smooth, quiet power. Perfect 50-50 balance gives a flat, level ride that no other new-size car can touch. ***Rides like the big ones!*** An equal load on every wheel. Steering is light and easy! Better braking and improved traction in snow, sand or mud! ***Independent suspension at all wheels.*** Swing axles keep Tempest on an even keel over bumps, ruts, dips and holes! ***112" wheelbase.*** Long enough for a cradled ride—short enough to handle like a sports car. ***Big 15" wheels.*** Good road clearance. Long tire life. (13" compact wheels turn about 4900 more times to go 100 miles.) ***Seats six men.*** The big transmission hump is gone. The middle man can stretch out size 12 brogans! ***Wide-Track, too!*** The track is up to 3 inches wider than most compacts. Less lean. Less sway. Better cornering. ***Pontiac dealers have it—and they have it now!*** A four-door sedan . . . a station wagon . . . a full line-up of accessories. Try the Tempest out for an hour—you'll want in for keeps! It's priced with the compacts!

PONTIAC MOTOR DIVISION • GENERAL MOTORS CORPORATION

QUALITY NEWCOMER FROM PONTIAC!

TEMPEST

AMERICA'S ONLY FRONT ENGINE ⟺ REAR TRANSMISSION CAR

155 H.P. FROM FOUR CYLINDERS!*

PRICED WITH THE COMPACTS!

*WITH 4-BARREL CARBURETOR AND AUTOMATIC TRANSMISSION. EXTRA-COST OPTIONS

[Continued from page 45]

Mr. Crane, the only way to relieve yourself of any future bumper bills is either to have your driveway cemented or buy a Rambler. What's your opinion, Uncle Tom?

Russell W. Dempsey
Pacific Grove, Calif.

Isn't this guy George Romney ever wrong?

● *My Grandfather had a little MG-like car 45 years ago and it was called a Scripps-Booth. It was pretty fancy, with wire wheels, and it weighed less than 1600 pounds. My Aunt, who remembers the car well, recalls almost everything about it except the price. She said it even had a boat-tail body and figures it must have cost about $2,500. Can you please tell me what the price was?*

Irwin O. Roberts
Boston, Mass.

The three-seater Scripps-Booth with wire wheels, etc., cost just under $800 in 1915. A similar, though slightly cheaper car of the day (also with wire wheels), was the Saxon. It sold for a hair less than $400!—or about $200 less than it costs to air-condition some cars today.

● *Who was the first President of the United States to drive an automobile?*

Albert Gresham
Seattle, Wash.

Teddy Roosevelt was the first Prexy to own and drive his own car. McKinley owned a car but had a chauffeur for the wheel-twirling chores.

● *Please settle an argument between a friend and myself. He says that if the power steering mechanism on a car failed to work while driving, the driver could not steer the car at all. I say that he could steer the car, although I do admit that it would be difficult. Which one of us is correct?*

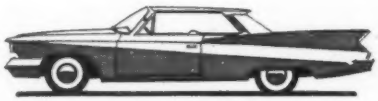
Sidney Webb
East Prairie, Mo.

Every power unit we've seen can be steered with the unit off but on some cars it takes a real sleeve-full of arm moxie.

● *Seems as though our American automobile manufacturers are utterly lacking in imagination. You walk into a battery store*

[Continued on page 50]

IF YOU'RE A PERFECTIONIST ABOUT YOUR

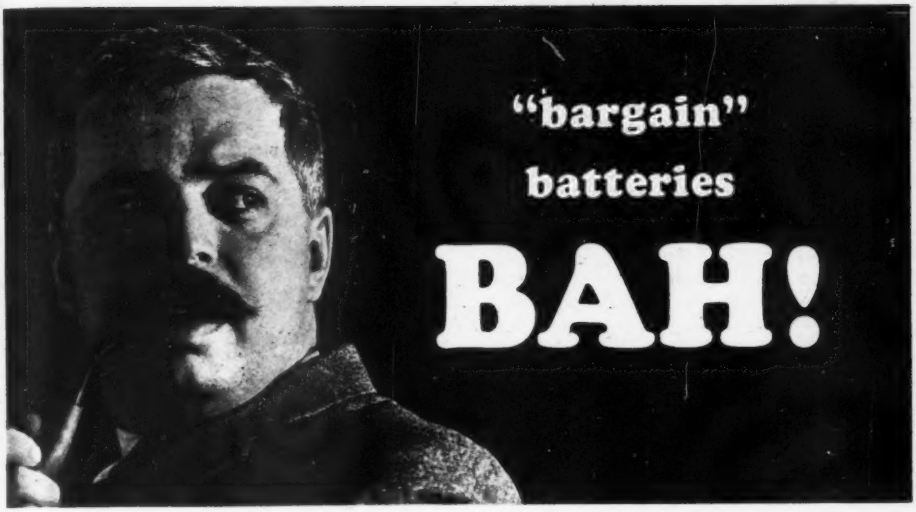


THEN YOU SHOULD HAVE A

Here's the all-weather answer to starting problems. Performance-proved at 150°F. *above* and 65°F. *below* zero, the Bendix Electric Fuel Pump gives instant hot-weather restarts, instant cold-weather starts. It prevents vapor lock, provides longest operating life. To start better—to go better—make it *Bendix*. See your dealer.

Bendix-Elmira
ECLIPSE MACHINE DIVISION
ELMIRA, N.Y.

THE Bendix CORPORATION



from now on it's a Delco DC-12 for me!

You can try to get by with a "bargain" battery—but a couple of dollars more for a Delco DC-12 Dry Charge can save you time, money and trouble!

What does it cost you to be two hours late for work? Most of us can't afford it, and it's especially annoying when caused by a bad battery. A dependable Delco Dry Charge Battery starts you off on time day after day, in all kinds of weather . . . yet it costs little more than so-called "bargain" batteries.

WHY YOU CAN BE SURE DELCO DC IS 100% FRESH

Delco Dry Charge Batteries stay bone dry until sold . . . can't lose any "zing" on the shelf. Delco DC comes to full, 100% fresh power only when you actually see the dealer add the activator fluid that makes it ready for work . . . thus you can be sure you're getting all the power you pay for!

YOUR DELCO BATTERY DEALER IS A LOCAL BUSINESSMAN

He appreciates your business, and automotive service is his specialty, not a sideline. He knows your car and your driving habits, and can specify the Delco DC battery that suits you best. He is conveniently located a few minutes from home, wants your continuing gasoline, oil and service business . . . and wants to be sure that you're satisfied and will come back regularly.

WHY JUST TRY TO GET BY . . . BE SURE WITH DELCO DC-12!

If time or money means little to you, you can afford a "bargain" battery. But if you're in the same boat with most folks, you need the 100% fresh, dependable power that makes Delco America's No. 1 Battery . . . "Designer's Choice" for most new cars, and "Driver's Choice" for replacement, too . . . proved so in surveys year after year. When it's time to replace, ask your dealer for Delco DC-12.

DELCO DC-12 . . . Best to START with . . . Best to STAY with

Another reliable General Motors product, distributed nationally through UMS

SEE TWO NEW TV SHOWS FOR DELCO—"Stagecoach West" and "The Islanders" on ABC-TV.

Mail For McCahill

[Continued from page 48]

now and they only have 15 or 20 different sizes and kinds of batteries on display whereas with a little ingenuity there could be a hundred or more. There could be seven, eight, nine, 11 and 13-volt batteries with the ground posts in various places, even in the center. The same thing could be done with wheels and tires. We could have 13, 13½, 14½ and 15½-inch wheels, with tires of many sizes. The headlights could be made in diameters from about three to eight inches in quarter-inch steps (also in many voltages, as could the generators and starter motors). The same scheme could apply to many other accessories so that the cost of operating a car would increase to the point where we would all be walking. Is that what they are trying to do now? Why not some standardization?

Tom Maffet
Ogden, Utah

They all use the same make of air in the tires.

● *As a regular reader of your car tests in MI I have come to value your opinion very highly and therefore am writing to you to get your views on my American car and the troubles I am having with it. Rather than go into detail, I am enclosing a copy of a letter which I addressed to the manufacturer in Canada and America. Do you feel that I am justified in printing large posters describing the mechanical faults of the car and stating that these cannot be repaired and then attaching them to the car and parking it outside the showroom where it was bought? Because this is what I am going to do and if I lose the case I will burn the car in front of the showroom.*

A. Reho
Hillbrow, Johannesburg
South Africa

We're with you.

● *As per photographs of you and cars, especially in April 1960 MI, why are you always trying to press those little sports cars into the ground with your big, fat elbow on the roof?*

Bob Ruck
Oxford, Wis.

[Continued on page 52]

for **fun** and more...
GO CUSHMAN®

A distinctively styled Cushman scooter, with its dynamic performance and safe roadability puts a new lift in your life. And there's more: A Cushman scooter provides today's most economical transportation—takes you anywhere for less than a penny per mile.

- Dependable Husky 4-cycle engine
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A subsidiary of Outboard Marine Corporation, maker of Johnson and Evinrude outboard motors

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Name_____
Address_____
City_____ State_____

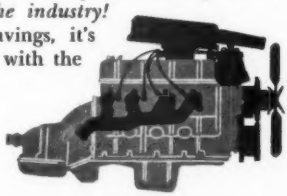
More pow per pound

—and not perhaps!

WHY IS THE BIGGEST NEWS in '61's new-size cars Buick's snappy Special? Styling for one. It's got the full-size Buick's Clean Look of action—and Buick room and ride. This on a 112" wheelbase—that nips in and out of tight spots like a scooter.

But the really big news in this beauty is its *oomph!* The Special has *twice* the pow per pound of most compacts . . . actually more than many full-size sixes and V-8's! The miracle explained?

BUICK'S REVOLUTIONARY ALUMINUM V-8. This hot 155 HP Fireball V-8 weighs just 318 pounds for a .487 horsepower to weight ratio *—highest in the industry!* Yet for gas savings, it's right up there with the compacts. Sports Cars Illustrated magazine has already predicted it will be "the most widely copied engine in the next 10 years."



BUT THERE'S EVEN MORE to the Special's zip. It's Buick's new Aluminum Dual-Path Turbine Drive* (weight: just 100 pounds)! Made just for a new-size car, it's the liveliest, simplest, most compact automatic made. Its "dual path" principle is like having two transmissions continuously working as a team—one a turbine drive for smoothness, the other a direct mechanical connection for more go and gas savings.

IN A NUTSHELL, the Special gives you small car pleasure without small car penalty. Why not take a Special spin today and prove it for yourself? Buick Motor Division—General Motors Corporation. **Optional at extra cost.*

BUICKSPECIAL

FINE FINISH SANDER—Light, handy and quiet. Powerful motor delivers 14,400 straight-line-action strokes per minute. Perfect for fine finishing and polishing. Strong black plastic case. Comes complete with 6 assorted abrasive sheets and 2 polishing pads. **$13.95**

MULTI-PURPOSE ½ HP "ALL-SAW"—Makes "one-job" saws obsolete. Does everything a Pattern Saw will do . . . more than a circular saw . . . many things normally done by a hand saw or nibbler—and many things that, until now, only a chain saw could do. UL "Industrially Rated," it cuts anything from a 6" log to intricate patterns in wood, metal, etc. Complete with 7 blades. **$44.95**

⅜" 2-Speed Power Drill.....$29.95
Lightweight Sabre Saw.....$26.95

WEN PRODUCTS, INC., 5810 Northwest Hwy., Chicago 31, Ill.

Mail For McCahill

[*Continued from page* 50]

I'm not pushing them down; I'm trying to keep them from blowing away.

● *I do a lot of traveling with my dog as a companion and as I understand you travel with dogs, you must have encountered the same thing. The very best motels welcome dogs and only the flea bags flatly refuse to take them. Am I right about this?*

Helen R. Schulz
Buffalo, N. Y.

You are 100 per cent right, Helen. My dogs are rarely refused at the best motels. On one or two occasions, such as in Tom's River, N. J., and other wayward spots where the "best" available is an out-and-out motorized flophouse, I got a flat turn-down because I had a dog with me. The finest hotels in New York City will gladly accept your dog pal, including the Plaza—but Pinky's Kozy Pine Kabins with old crate flooring will most likely say "No."

● *We have power steering on our tractor and it is haywire. All the operator's manual tells you is how to check the oil. Anyway, you can turn the wheel only half-way sometimes. Other times it works fine. Could you tell me what is wrong?*

Ron Nelson
Olympia, Wash.

Maybe the belt is loose. However, a diagnosis from this distance is like cabling a girl in Madrid that her nose is shiny.

● *I have noticed that some people race their engines just before turning the ignition switch off. Could you tell me if this is supposed to do some good? Or is it only a way to wear out your engine faster?*

Sergio Ajuria
Mexico 17, D.F.
Mexico

This is an old chestnut that goes back many years when most cars were lubricated by the "splash" system. Racing the engine just before stopping it helped not only clean out the manifold and combustion chambers but also spread a film of oil over all the moving parts for future easier starting. Today, with pressure lubrication systems and high compression engines, the only possible reason you might speed up an engine before stopping would be after a lot of very slow idling or running, which in some engines could cause plug fouling. A slight speed-up before shut-off could clean up the plugs for an easier go next time.

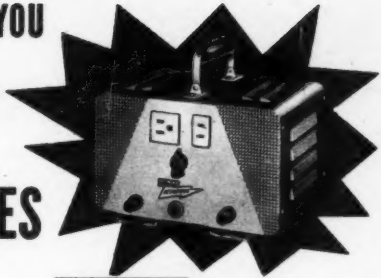
[*Continued on page* 54]

EW ELECTRONIC DEVELOPMENT GIVES YOU

110 VOLT 60 CYCLE AC

FROM

2 VOLT STORAGE BATTERIES



ESB PACKAGED POWER ACTIVERTER

© 1960

ow—from the laboratories of ESB—comes a major break-rough in "packaged power"! Using advanced solid-state ectronic components, ESB engineers have developed a evolutionary, transistorized inverter-charger, the ESB CTIVERTER. This amazing new product means that you an now have the convenience and the utility that 110 Volt AC urrent can bring, and you can have it wherever you can take a 2 Volt storage battery! Just connect the ESB ACTIVERTER o a battery and you can plug in portable electric power tools, an lectric blanket, electric lights, even a television set! A flick of a witch and the ESB ACTIVERTER becomes a battery charger.

The miracle of transistors makes "house power" truly portable!

SB ACTIVERTERS are the result of a totally new concept electronic design. They are fully transistorized to reduce eight, increase reliability, and to provide the ruggedness hat a portable power package must have. There are no oving parts or vibrators—ESB ACTIVERTERS are quiet n their operation!

he compactness of the ESB CTIVERTER design makes possible to have a 12 Volt torage battery, an inverter, nd a battery charger all in one elf-contained and truly port-ble package. One PAK-O-OWER model provides a ource of 110 Volt alternating urrent, with an output rating f 500 Watts, in a package the ize of a portable picnic cooler!

Dependable current for hundreds of applications!

Where in this wide world would *you* like to have the conven-ence and versatility of "plug in" 110 Volt AC current? With he ESB ACTIVERTER you can have it instantly, anywhere, or many hours! On camping trips you can have the comfort nd pleasures of television, radio, electric lighting. On and f the highway you can power general service tools and im-pact wrenches, or use the ESB ACTIVERTER for car starting nd emergency lighting. Boat owners can have 110 Volt AC vailable afloat or at dockside. We have compiled a list of everal hundred ESB ACTIVERTER applications, yet many ses for this revolutionary new product have not even been hought of. They will come from people like you who want and need portable power for specific and perhaps unique purposes!

Battery charger is built in!

n designing this remarkable new product we've considered very feature that would increase the versatility and usefulness f packaged power for you. And that includes a built-in attery charger, electronically designed, without increasing SB ACTIVERTER weight and size. A simple switch lets you nvert alternating current from a household outlet into direct urrent for either fast *or* slow charging of 6 and 12 Volt batteries.

Four different models provide from 150 to 500 Watts!

MODEL I-152 INVERTER—Inverter only, operates from direct connection to 12 Volt battery or through cigarette lighter socket of cars with 12 Volt systems. Output ratings: Intermittent Use—150 Watts, 1.5 Amps. AC . . . Continuous Use—125 Watts, 1.2 Amps. AC. Shipping Weight: 8 lbs.

MODEL IC-252 ACTIVERTER—Inverter-Charger operates from direct connection to 12 Volt battery. Output ratings: Intermittent Use—250 Watts, 2.3 Amps. AC . . . Continuous Use—200 Watts, 1.8 Amps. AC. Shipping Weight: 15 lbs.

MODEL IC-202P PAK-O-POWER—Inverter-Charger with compartment for 12 Volt battery. Completely self-contained unit. Output ratings: Intermittent Use—250 Watts, 2.3 Amps. AC . . . Continuous Use—200 Watts, 1.8 Amps. AC. Shipping Weight less battery: 22 lbs.

MODEL IC-506S PAK-O-POWER—The Multi-Service Inverter-Charger-Car Start unit, with large 12 Volt battery compartment and Car Start leads. Completely self-contained with built-in fast and slow charger—Charging rate: 60 Amps. for 6 Volt, and 40 Amps. for 12 Volt batteries. Output ratings: Intermittent Use—500 Watts, 4.0 Amps. AC . . . Continuous Use—300 Watts, 2.5 Amps. AC. Shipping Weight less battery: 55 lbs.

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Please send me ESB ACTIVERTER information without obligation.

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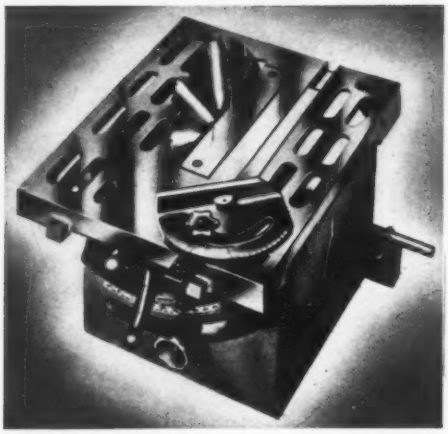

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Mail For McCahill

[Continued from page 52]

● *I recently bought a '53 Studebaker. took the car out for a run to time it didn't expect it to do 0-60 mph in less than seconds but it did it in 11 seconds. Wh causing this trouble?*

Walter Pofeldt
So. Ozone Park, N

Possibly a hill.

● *Last month I purchased a station wa from an authorized dealer in Atlanta the full list price of $2,826.72. Everything w fine until I got the car home and I started close inspection. I saw that there was a s painted on the door of the car. It was j visible but I could make out the lette "S C H O O L" and the paint in that area h been rubbed almost through to the primer. contacted the sales manager who gave me satisfaction. When I asked why I was so a used car and charged for a new one (w bill of sale says "new") he said they drive their cars and as far as they were concern I had a new one and they had no intention doing anything about it. Is there anythi I can do or am I stuck?*

Wallace E. Huds
Marietta, Ga.

Despite what we hear in the north some times, there must be a D.A.'s office in Atlan and if so, he might be interested in hearin your story. Certainly the Better Busine Bureau will. It's like buying a "new" neck only to find the salesman had worn it pr viously.

● *One phrase you have used frequent "Hit the panic button," gave me an id so I sent it to one of the manufacturers. is for them to actually install a button switch that would turn on all of the tu indicators simultaneously and make the continue to blink until switched off agai That's one light even the idiots should under stand.*

Jack Isom
Houston, Tex

Pretty handy in jams. I think it's a gre idea, especially for dark and stormy night when you might run into an accident th has the entire highway blocked.

● *Heeding your advice in Today's Spor And Competition Cars, I purchased a MG TF in mint condition. However, I woul like to know if a supercharger would improv its performance without harming the engine*

[Continued on page 56]

Ford Starliner, driven by Karol Miller, races across Bonneville Salt Flats.

ord Starliner
ith Champion spark plugs
ets record of 157.9 m.p.h.!

is is a lot faster than *you'd* want to drive. But it shows you e kind of performance Champion spark plugs deliver.

This was a *standard* Ford—the kind you can order from your aler. It used gas you can buy at the pump. And it was sparked y the plugs—Champions—most dealers recommend for *your* car.

Winners of 9 out of 10 major races use Champion spark plugs. Twice as many car manufacturers specify them. New Champions ill make *your* car perform better (and save money on gasoline), o! Put in a set every 10,000 miles!

CHAMPION

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BORDEN'S PRODUCTS FOR THE HOME HANDYMAN

Mail For McCahill

[*Continued from page 54*]

Also, how about a list of your forthcoming books?

Eugene Le Grand, Jr.
Shelby, N. C.

A supercharger will improve its performance, without question, but it sure won't add to your MG's life—in fact, it will knock longevity into a cocked hat, if you utilize all the properties of the blower on every possible occasion. My newest book, just out, is Tom McCahill's Car Owner Handbook, a 75¢ Fawcett Book available at your local newsstand.

● *We were having an argument the other day about what would be absolutely the worst thing that could happen to you while driving. What is your nomination?*

Granby Howell
Dallas, Texas

Being killed.

● *My old man claims that the new high compression V8s will run and run well on regular gas, by changing the timing. I don't think advancing the timing would have any effect on preventing knocking. Which of us is right, Uncle Tom?*

Gary Kyle
Concord, Calif.

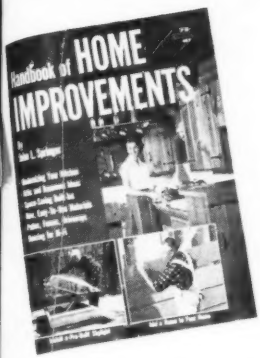
You're surer than hell right. By advancing the timing you'd probably blow the tops off all the pistons. However, by retarding the spark timing, it would be possible to run any American car on regular gas. But it wouldn't run well and would burn a lot more regular gas while doing it than it would burn premium gas with the engine correctly timed.

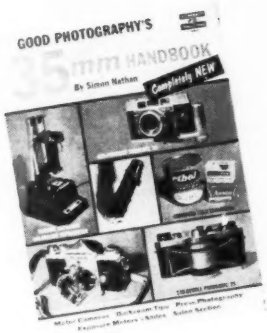
—*Tom McCahill*

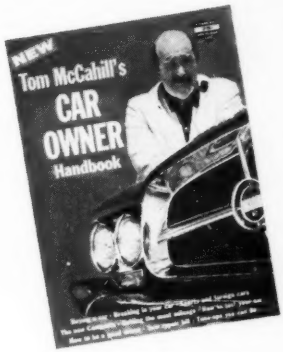
Natural Cement May Ruin Beaches

A relatively unknown geological formation may be threatening valuable bathing beaches around the world. Dr. Richard J. Russell, director of the Louisiana State University Coastal Studies Institute, has reported that sand, gravel, boulders or anything else which happens to be in tropical or sub-tropical beaches somehow becomes tightly cemented with a form of calcium carbonate or lime, and forms rock-like strips beneath the surface of beaches. This "beach rock" can wreck small boats expecting to land on soft beach sand. When it becomes exposed it can ruin popular swimming beaches.

FAWCETT HOW-TO BOOKS







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